

TrendSitters
Digital Content
And Web Technologies

4th EDITION

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E-BOOKS AND E-PUBLISHING

The Future of Electronic Publishing

First published by United Press International (UPI)

UNESCO's somewhat arbitrary definition of "book" is:

""Non-periodical printed publication of at least 49 pages excluding covers".

The emergence of electronic publishing was supposed to change all that. Yet a bloodbath of unusual proportions has taken place in the last few months. Time Warner's iPublish and MightyWords (partly owned by Barnes and Noble) were the last in a string of resounding failures which cast in doubt the business model underlying digital content. Everything seemed to have gone wrong: the dot.coms dot bombed, venture capital dried up, competing standards fractured an already fragile marketplace, the hardware (e-book readers) was clunky and awkward, the software unwieldy, the e-books badly written or already in the public domain.

Terrified by the inexorable process of disintermediation (the establishment of direct contact between author and readers, excluding publishers and bookstores) and by the ease with which digital content can be replicated - publishers resorted to draconian copyright protection measures (euphemistically known as "digital rights management"). This further alienated the few potential readers left. The opposite model of "viral" or "buzz" marketing (by encouraging the dissemination of free copies of the promoted book) was only marginally more successful.

Moreover, e-publishing's delivery platform, the Internet, has been transformed beyond recognition since March 2000.

From an open, somewhat anarchic, web of networked computers - it has evolved into a territorial, commercial, corporate extension of "brick and mortar" giants, subject to government regulation. It is less friendly towards independent (small) publishers, the backbone of e-publishing. Increasingly, it is expropriated by publishing and media behemoths. It is treated as a medium for cross promotion, supply chain management, and customer relations management. It offers only some minor synergies with non-cyberspace, real world, franchises and media properties. The likes of Disney and Bertelsmann have swung a full circle from considering the Internet to be the next big thing in New Media delivery - to frantic efforts to contain the red ink it oozed all over their otherwise impeccable balance sheets.

But were the now silent pundits right all the same? Is the future of publishing (and other media industries) inextricably intertwined with the Internet?

The answer depends on whether an old habit dies hard. Internet surfers are used to free content. They are very reluctant to pay for information (with precious few exceptions, like the "Wall Street Journal"'s electronic edition). Moreover, the Internet, with 3 billion pages listed in the Google search engine (and another 15 billion in "invisible" databases), provides many

free substitutes to every information product, no matter how superior. Web based media companies (such as Salon and Britannica.com) have been experimenting with payment and pricing models. But this is besides the point. Whether in the form of subscription (Britannica), pay per view (Questia), pay to print (Fathom), sample and pay to buy the physical product (RealRead), or micropayments (Amazon) - the public refuses to cough up.

Moreover, the advertising-subsidized free content Web site has died together with Web advertising. Geocities - a community of free hosted, ad-supported, Web sites purchased by Yahoo! - is now selectively shutting down Web sites (when they exceed a certain level of traffic) to convince their owners to revert to a monthly hosting fee model. With Lycos in trouble in Europe, Tripod may well follow suit shortly. Earlier this year, Microsoft has shut down ListBot (a host of discussion lists). Suite101 has stopped paying its editors (content authors) effective January 15th. About.com fired hundreds of category editors. With the ugly demise of Themestream, WebSeed is the only content aggregator which tries to buck the trend by relying (partly) on advertising revenue.

Paradoxically, e-publishing's main hope may lie with its ostensible adversary: the library. Unbelievably, e-publishers actually tried to limit the access of library patrons to e-books (i.e., the lending of e-books to multiple patrons). But, libraries are not only repositories of knowledge and community centres. They are also dominant promoters of new knowledge technologies. They are already the largest buyers of e-books. Together with schools and other educational institutions, libraries can serve as decisive socialization agents and introduce generations of pupils, students, and readers to the possibilities and riches of e-publishing. Government use of e-books (e.g., by the military) may have the same beneficial effect.

As standards converge (Adobe's Portable Document Format and Microsoft's MS Reader LIT format are likely to be the winners), as hardware improves and becomes ubiquitous (within multi-purpose devices or as standalone higher quality units), as content becomes more attractive (already many new titles are published in both print and electronic formats), as more versatile information taxonomies (like the Digital Object Identifier) are introduced, as the Internet becomes more gender-neutral, polyglot, and cosmopolitan - e-publishing is likely to recover and flourish.

This renaissance will probably be aided by the gradual decline of print magazines and by a strengthening movement for free open source scholarly publishing. The publishing of periodical content and academic research (including, gradually, peer reviewed research) may be already shifting to the Web. Non-fiction and textbooks will follow. Alternative models of pricing are already in evidence (author pays to publish, author pays to obtain peer review, publisher pays to publish, buy a physical product and gain access to enhanced online content, and so on). Web site rating agencies will help to discriminate between the credible and the incredible. Publishing is moving - albeit kicking and screaming - online.

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The Disintermediation of Content

Are content brokers - publishers, distributors, and record companies - a thing of the past?

In one word: disintermediation

The gradual removal of layers of content brokering and intermediation - mainly in manufacturing marketing - is the continuation of a long term trend. Consider music for instance. Streaming audio on the internet ("soft radio"), or downloadable MP3 files may render the CD obsolete - but they were preceded by radio music broadcasts. But the novelty is that the Internet provides a venue for the marketing of niche products and reduces the barriers to entry previously imposed by the need to invest in costly "branding" campaigns and manufacturing and distribution activities.

This trend is also likely to restore the balance between artists and the commercial exploiters of their products. The very definition of "artist" will expand to encompass all creative people. One will seek to distinguish oneself, to "brand" oneself and to auction one's services, ideas, products, designs, experience, physique, or biography, etc. directly to end-users and consumers. This is a return to pre-industrial times when artisans ruled the economic scene. Work stability will suffer and work mobility will increase in a landscape of shifting allegiances, head hunting, remote collaboration, and similar labour market trends.

But distributors, publishers, and record companies are not going to vanish. They are going to metamorphose. This is because they fulfil a few functions and provide a few services whose importance is only enhanced by the "free for all" Internet culture.

Content intermediaries grade content and separate the qualitative from the ephemeral and the atrocious. The deluge of self-published and vanity published e-books, music tracks and art works has generated few masterpieces and a lot of trash. The absence of judicious filtering has unjustly given a bad name to whole segments of the industry (e.g., small, or web-based publishers). Consumers - inundated, disappointed and exhausted - will pay a premium for content rating services. Though driven by crass commercial considerations, most publishers and record companies do apply certain quality standards routinely and thus are positioned to provide these rating services reliably.

Content brokers are relationship managers. Consider distributors: they provide instant access to centralized, continuously updated, "addressbooks" of clients (stores, consumers, media, etc.). This reduces the time to market and increases efficiency. It alters revenue models very substantially. Content creators can thus concentrate on what they do best: content creation, and reduce their overhead by outsourcing the functions of distribution and relationships management. The existence of central "relationship ledgers" yields synergies which can be applied to all the clients of the distributor. The distributor provides a single address that content re-sellers converge on and feed off. Distributors, publishers and record companies also provide logistical support: warehousing, consolidated sales reporting and transaction auditing, and a single, periodic payment.

Yet, having said all that, content intermediaries still over-charge their clients (the content creators) for their services. This is especially true in an age of just-in-time inventory and digital distribution. Network effects mean that content brokers have to invest much less in marketing, branding and advertising once a product's first mover advantage is established. Economic laws of increasing, rather than diminishing, returns mean that every additional unit sold yields a HIGHER profit - rather than a declining one. The pie is getting bigger.

Hence, the meteoric increase in royalties publishers pay authors from sales of the electronic versions of their work (anywhere from Random House's 35% to 50% paid by smaller publishers). As this tectonic shift reverberates through the whole distribution chain, retail outlets are beginning to transact directly with content creators. The borders between the types of intermediaries are blurred. Barnes and Noble (the American bookstores chain) has, in effect, become a publisher. Many publishers have virtual storefronts. Many authors sell directly to their readers, acting as publishers. The introduction of "book ATMs" - POD (Print On Demand) machines, which will print every conceivable title in minutes, on the spot, in "book kiosks" - will give rise to a host of new intermediaries. Intermediation is not gone. It is here to stay because it is sorely needed. But it is in a state of flux. Old maxims break down. New modes of operation emerge.

Functions are amalgamated, outsourced, dispensed with, or created from scratch. It is an exciting scene, full with opportunities.

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E(merging) Books

A novel re-definition through experimentation of the classical format of the book is emerging.

Consider the now defunct [BookTailor](#). It used to sell its book customization software mainly to travel agents - but such software is likely to conquer other niches (such as the legal and medical professions). It allows users to select bits and pieces from a library of e-books, combine them into a totally new tome and print and bind the latter on demand. The client can also choose to buy the end-product as an e-book. Consider what this simple business model does to entrenched and age old notions such as "original" and "copies", copyright, and book identifiers. What is the "original" in this case? Is it the final, user-customized book - or its sources? And if no customized book is identical to any other - what happens to the intuitive notion of "copies"? Should BookTailor-generated books considered to be unique exemplars of one-copy print runs? If so, should each one receive a unique identifier (for instance, a unique ISBN)? Does the user possess any rights in the final product, composed and selected by him? What about the copyrights of the original authors?

Or take [BookCrossing.com](#). On the face of it, it presents no profound challenge to established publishing practices and to the modern concept of intellectual property. Members register their books, obtain a BCID (BookCrossing ID Number) and then give the book to someone, or simply leave it lying around for a total stranger to find. Henceforth, fate determines the chain of events. Eventual successive owners of the volume are supposed to report to BookCrossing (by e-mail) about the book's and their whereabouts, thereby generating moving plots and mapping the territory of literacy and bibliomania. This innocuous model subversively undermines the concept - legal and moral - of ownership. It also expropriates the book from the realm of passive, inert objects and transforms it into a catalyst of human interactions across time and space. In other words, it returns the book to its origins: a time capsule, a time machine and the embodiment of a historical narrative.

E-books, hitherto, have largely been nothing but an ephemeral rendition of their print predecessors. But e-books are another medium altogether. They can and will provide a different reading experience. Consider "hyperlinks within the e-book and without it - to web content, reference works, etc., embedded instant shopping and ordering links, divergent, user-interactive, decision driven plotlines, interaction with other e-books (using Bluetooth or another wireless standard), collaborative authoring, gaming and community activities, automatically or periodically updated content, ,multimedia capabilities, database, Favourites and History Maintenance (records of reading habits, shopping habits, interaction with other readers, plot related decisions and much more), automatic and embedded audio conversion and translation capabilities, full wireless piconetworking and scatternetworking capabilities and more".

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Invasion of the Amazons

The last few months have witnessed a bloodbath in tech stocks coupled with a frantic re-definition of the web and of every player in it (as far as content is concerned).

This effort is three pronged:

Some companies are gambling on content distribution and the possession of the attendant digital infrastructure. MightyWords, for example, stealthily transformed itself from a "free-for-all-everyone-welcome" e-publisher to a distribution channel of choice works (mainly by midlist authors). It now aims to feed its content to content-starved web sites. In the process, it shed thousands of unfortunate authors who did not meet its (never stated) sales criteria.

Others bet the farm on content creation and packaging. Bn.com invaded the digital publishing and POD (Print on Demand) businesses in a series of lightning purchases. It is now the largest e-book store by a wide margin.

But Amazon seemed to have got it right once more. The web's own virtual mall and the former darling of Wall Street has diversified into micropayments.

The Internet started as a free medium for free spirits. E-commerce was once considered a dirty word. Web surfers became used to free content. Hence the (very low) glass ceiling on the price of content made available through the web - and the need to charge customers less than 1 US dollars to a few dollars per transaction ("micro-payments"). Various service providers (such as Pay-Pal) emerged, none became sufficiently dominant and all-pervasive to constitute a standard. Web merchants' ability to accept micropayments is crucial. E-commerce (let alone m-commerce) will never take off without it.

Enter Amazon. Its "Honour System" is licenced to third party web sites (such as Bartleby.com and SatireWire). It allows people to donate money or effect micro-payments, apparently through its patented one-click system. As far as the web sites are concerned, there are two major drawbacks: all donations and payments are refundable within 30 days and Amazon charges them 15 cents per transaction plus 15(!) percent. By far the worst deal in town.

So, why the fuss?

Because of Amazon's customer list. This development emphasizes the growing realization that one's list of customers - properly data mined - is the greatest asset, greater even than original content and more important than distribution channels and digital right management or asset management applications. Merchants are willing to pay for access to this ever expanding virtual neighbourhood (even if they are not made privy to the customer information collected by Amazon).

The Honour System looks suspiciously similar to the payment system designed by Amazon for Stephen King's serialized e-novel, "The Plant". Interesting to note how the needs of authors and publishers are now in the driver's seat, helping to spur along innovations in business methods.

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Revolt of the Scholars

<http://www.realsci.com/>

Scindex's Instant Publishing Service is about empowerment. The price of scholarly, peer-reviewed journals has skyrocketed in the last few years, often way out of the limited means of libraries, universities, individual scientists and scholars. A "scholarly divide" has opened between the haves (academic institutions with rich endowments and well-heeled corporations) and the haves not (all the others). Paradoxically, access to authoritative and authenticated knowledge has declined as the number of professional journals has proliferated. This is not to mention the long (and often crucial) delays in publishing research results and the shoddy work of many under-paid and over-worked peer reviewers.

The Internet was suppose to change all that. Originally, a computer network for the exchange of (restricted and open) research results among scientists and academics in participating institutions - it was supposed to provide instant publishing, instant access and instant gratification. It has delivered only partially. Preprints of academic papers are often placed online by their eager authors and subjected to peer scrutiny. But this haphazard publishing cottage industry did nothing to dethrone the print incumbents and their avaricious pricing.

The major missing element is, of course, respectability. But there are others. No agreed upon content or knowledge classification method has emerged. Some web sites (such as Suite101) use the Dewey decimal system. Others invented and implemented systems of their making. Additionally, one click publishing technology (such as Webseed's or Blogger's) came to be identified strictly to non-scholarly material: personal reminiscences, correspondence, articles and news.

Enter Scindex and its Academic Resource Channel. Established by academics and software experts from Bulgaria, it epitomizes the tearing down of geographical barriers heralded by the Internet. But it does much more than that. Scindex is a whole, self-contained, stand-alone, instant self-publishing and self-assembly system. Self-publishing systems do exist (for instance, Purdue University's) - but they incorporate only certain components. Scindex covers the whole range.

Having (freely) registered as a member, a scientist or a scholar can publish their papers, essays, research results, articles and comments online. They have to submit an abstract and use Scindex's classification ("call") numbers and science descriptors, arranged in a massive directory available in the "RealSci Locator". The Locator can be also downloaded and used off-line and its is surprisingly user-friendly. The submission process itself is totally automated and very short.

The system includes a long series of thematic journals. These journals self-assemble, in accordance with the call numbers selected by the submitters. An article submitted with certain call numbers will automatically be included in the relevant journals.

The fly in the ointment is the absence of peer review. As the system moves from beta to commercialization, Scindex intends to address this issue by introducing a system of incentives and inducements. Reviewers will be granted "credit points" to be applied against the (paid) publication of their own papers, for instance.

Scindex is the model of things to come. Publishing becomes more and more automated and knowledge-orientated. Peer reviewed papers become more outlandishly expensive and irrelevant. Scientists and scholars are getting impatient and rebellious. The confluence of these three trends spells - at the least - the creation of a web based universe of parallel and alternative scholarly publishing.

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The Kidnapping of Content

<http://www.plagiarism.org> and <http://www.Turnitin.com>

Latin kidnapped the word "plagion" from ancient Greek and it ended up in English as "plagiarism". It literally means "to kidnap" - most commonly, to misappropriate content and wrongly attribute it to oneself. It is a close kin of piracy. But while the software or content pirate does not bother to hide or alter the identity of the content's creator or the software's author - the plagiarist does. Plagiarism is, therefore, more pernicious than piracy.

Enter Turnit.com. An off-shoot of www.iparadigms.com, it was established by a group of concerned (and commercially minded) scientists from UC Berkeley.

Whereas digital rights and asset management systems are geared to prevent piracy - plagiarism.org and its commercial arm, Turnit.com, are the cyber equivalent of a law enforcement agency, acting after the fact to discover the culprits and uncover their misdeeds. This, they claim, is a first stage on the way to a plagiarism-free Internet-based academic community of both teachers and students, in which the educational potential of the Internet can be fully realized.

The problem is especially severe in academia. Various surveys have discovered that a staggering 80%(!) of US students cheat and that at least 30% plagiarize written material. The Internet only exacerbated this problem. More than 200 cheat-sites have sprung up, with thousands of papers available on-line and tens of thousands of satisfied plagiarists the world over. Some of these hubs - like cheater.com, cheatweb or cheathouse.com - make no bones about their offerings. Many of them are located outside the USA (in Germany, or Asia) and at least one offers papers in a few languages, Hebrew included.

The problem, though, is not limited to the ivory towers. E-zines plagiarize. The print media plagiarize. Individual journalists plagiarize, many with abandon. Even advertising agencies and financial institutions plagiarize. The amount of material out there is so overwhelming that the plagiarist develops a (fairly justified) sense of immunity. The temptation is irresistible, the rewards big and the pressures of modern life great.

Some of the plagiarists are straightforward copiers. Others substitute words, add sentences, or combine two or more sources. This raises the question: "when should content be considered original and when - plagiarized?". Should the test for plagiarism be more stringent than the one applied by the Copyright Office? And what rights are implicitly granted by the material's genuine authors or publishers once they place the content on the Internet? Is the Web a public domain and, if yes, to what extent? These questions are not easily answered. Consider reports generated by users from a database.

Are these reports copyrighted - and if so, by whom - by the database compiler or by the user who defined the parameters, without which the reports in question would have never been generated? What about "fair use" of text and works of art? In the USA, the backlash against digital content piracy and plagiarism has reached preposterous legal, litigious and technological nadirs.

Plagiarism.org has developed a statistics-based technology (the "Document Source Analysis") which creates a "digital fingerprint" of every document in its database. Web crawlers are then unleashed to scour the Internet and find documents with the same fingerprint and a colour-coded report is generated. An instructor, teacher, or professor can then use the report to prove plagiarism and cheating.

Piracy is often considered to be a form of viral marketing (even by software developers and publishers). The author's, publisher's, or software house's data are preserved intact in the cracked copy. Pirated copies of e-books often contribute to increased sales of the print versions. Crippled versions of software or pirated copies of software without its manuals, updates and support - often lead to the purchase of a licence. Not so with plagiarism. The identities of the author, editor, publisher and illustrator are deleted and replaced by the details of the plagiarist. And while piracy is discussed freely and fought vigorously - the discussion of plagiarism is still taboo and actively suppressed by image-conscious and endowment-weary academic institutions and media. It is an uphill struggle but plagiarism.org has taken the first resolute step.

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The Miraculous Conversion

<http://www.ideavirus.com>

The recent bloodbath among online content peddlers and digital media proselytisers can be traced to two deadly sins. The first was to assume that traffic equals sales. In other words, that a miraculous conversion will spontaneously occur among the hordes of visitors to a web site. It was taken as an article of faith that a certain percentage of this mass will inevitably and nigh hypnotically reach for their bulging pocketbooks and purchase content, however packaged. Moreover, ad revenues (more reasonably) were assumed to be closely correlated with "eyeballs". This myth led to an obsession with counters, page hits, impressions, unique visitors, statistics and demographics.

It failed, however, to take into account the dwindling efficacy of what Seth Godin, in his brilliant essay ("Unleashing the IdeaVirus"), calls "Interruption Marketing" - ads, banners, spam and fliers. It also ignored, at its peril, the ethos of free content and open source prevalent among the Internet opinion leaders, movers and shapers. These two neglected aspects of Internet hype and culture led to the trouncing of erstwhile promising web media companies while their business models were exposed as wishful thinking.

The second mistake was to exclusively cater to the needs of a highly idiosyncratic group of people (Silicone Valley geeks and nerds). The assumption that the USA (let alone the rest of the world) is Silicone Valley writ large proved to be calamitous to the industry.

In the 1970s and 1980s, evolutionary biologists like Richard Dawkins and Rupert Sheldrake developed models of cultural evolution. Dawkins' "meme" is a cultural element (like a behaviour or an idea) passed from one individual to another and from one generation to another not through biological -genetic means - but by imitation. Sheldrake added the notion of contagion - "morphic resonance" - which causes behaviour patterns to suddenly emerged in whole populations. Physicists talked about sudden "phase transitions", the emergent results of a critical mass reached. A latter day thinker, Michael Gladwell, called it the "tipping point".

Seth Godin invented the concept of an "ideavirus" and an attendant marketing terminology. In a nutshell, he says, to use his own summation:

"Marketing by interrupting people isn't cost-effective anymore. You can't afford to seek out people and send them unwanted marketing, in large groups and hope that some will send you money. Instead the future belongs to marketers who establish a foundation and process where interested people can market to each other. Ignite consumer networks and then get out of the way and let them talk."

This is sound advice with a shaky conclusion. The conversion from exposure to a marketing message (even from peers within a consumer network) - to an actual sale is a convoluted, multi-layered, highly complex process. It is not a "black box", better left unattended to. It is the same deadly sin all over again - the belief in a miraculous conversion. And it is highly US-centric. People in other parts of the world interact entirely differently.

You can get them to visit and you get them to talk and you can get them to excite others. But to get them to buy - is a whole different ballgame. Dot.coms had better begin to study its rules.

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The Medium and the Message

A debate is raging in e-publishing circles: should content be encrypted and protected (the Barnes and Noble or Digital goods model) - or should it be distributed freely and thus serve as a form of viral marketing (Seth Godin's "ideavirus")? Publishers fear that freely distributed and cost-free "cracked" e-books will cannibalize print books to oblivion.

The more paranoid point at the music industry. It failed to co-opt the emerging peer-to-peer platforms (Napster) and to offer a viable digital assets management system with an equitable sharing of royalties. The results? A protracted legal battle and piracy run amok. "Publishers" - goes this creed - "are positioned to incorporate encryption and protection measures at the very inception of the digital publishing industry. They ought to learn the lesson."

But this view ignores a vital difference between sound and text. In music, what matter are the song or the musical piece. The medium (or carrier, or packing) is marginal and interchangeable. A CD, an audio cassette, or an MP3 player are all fine, as far as the consumer is concerned. The listener bases his or her purchasing decisions on sound quality and the faithfulness of reproduction of the listening experience (for instance, in a concert hall). This is a very narrow, rational, measurable and quantifiable criterion.

Not so with text.

Content is only one element of many of equal footing underlying the decision to purchase a specific text-"carrier" (medium). Various media encapsulating IDENTICAL text will still fare differently. Hence the failure of CD-ROMs and e-learning. People tend to consume content in other formats or media, even if it is fully available to them or even owned by them in one specific medium. People prefer to pay to listen to live lectures rather than read freely available online transcripts. Libraries buy print journals even when they have subscribed to the full text online versions of the very same publications. And consumers overwhelmingly prefer to purchase books in print rather than their e-versions.

This is partly a question of the slow demise of old habits. E-books have yet to develop the user-friendliness, platform-independence, portability, browsability and many other attributes of this ingenious medium, the Gutenberg tome. But it also has to do with marketing psychology. Where text (or text equivalents, such as speech) is concerned, the medium is at least as important as the message. And this will hold true even when e-books catch up with their print brethren technologically.

There is no doubting that finally e-books will surpass print books as a medium and offer numerous options: hyperlinks within the e-book and without it - to web content, reference works, etc., embedded instant shopping and ordering links, divergent, user-interactive, decision driven plotlines, interaction with other e-books (using Bluetooth or another wireless standard), collaborative authoring, gaming and community activities, automatically or periodically updated content, multimedia capabilities, database, Favourites and History Maintenance (records of reading habits, shopping habits, interaction with other readers, plot related decisions and much more), automatic and embedded audio conversion and translation capabilities, full wireless piconetworking and scatternetworking capabilities and more.

The same textual content will be available in the future in various media. Ostensibly, consumers should gravitate to the feature-rich and much cheaper e-book. But they won't - because the medium is as important as the text message. It is not enough to own the same content, or to gain access to the same message. Ownership of the right medium does count. Print books offer connectivity within an historical context (tradition). E-books are cold and impersonal, alienated and detached. The printed word offers permanence. Digital text is ephemeral (as anyone whose writings perished in the recent dot.com bloodbath or Deja takeover by Google can attest). Printed volumes are a whole sensorium, a sensual experience - olfactory and tactile and visual. E-books are one dimensional in comparison. These are differences that cannot be overcome, not even with the advent of digital "ink" on digital "paper". They will keep the print book alive and publishers' revenues flowing.

People buy printed matter not merely because of its content. If this were true e-books will have won the day. Print books are a packaged experience, the substance of life. People buy the medium as often and as much as they buy the message it encapsulates. It is impossible to compete with this mystique. Safe in this knowledge, publishers should let go and impose on e-books "encryption" and "protection" levels as rigorous as they do on their print books. The latter are here to stay alongside the former. With the proper pricing and a modicum of trust, e-books may even end up promoting the old and trusted print versions.

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The Idea of Reference

<http://www.britannica.com>

There is no source of reference remotely as authoritative as the Encyclopaedia Britannica. There is no brand as venerable and as veteran as this mammoth labour of knowledge and ideas established in 1768. There is no better value for money. And, after a few sputters and bugs, it now comes in all shapes and sizes, including two CD-ROM versions (standard and deluxe) and an appealing and reader-friendly web site. So, why does it always appear to be on the brink of extinction?

The Britannica provides for an interesting study of the changing fortunes (and formats) of vendors of reference. As late as a decade ago, it was still selling in a leather-imitation bound set of 32 volumes. As print encyclopaedias went, it was a daring innovator and a pioneer of hyperlinked-like textual design. It sported a subject index, a lexical part and an alphabetically arranged series of in-depth essays authored by the best in every field of human erudition.

When the CD-ROM erupted on the scene, the Britannica mismanaged the transition. As late as 1997, it was still selling a sordid text-only compact disc which included a part of the encyclopaedia. Only in 1998, did the Britannica switch to multimedia and added tables and graphs to the CD. Video and sound were to make their appearance even later. This error in trend analysis left the field wide open to the likes of Encarta and Grolier. The Britannica failed to grasp the irreversible shift from cumbersome print volumes to slender and freely searchable CD-ROMs. Reference was going digital and the Britannica's sales plummeted.

The Britannica was also late to cash on the web revolution - but, when it did, it became a world leader overnight. Its unbeatable brand was a decisive factor. A failed experiment with an annoying subscription model gave way to unrestricted access to the full contents of the Encyclopaedia and much more besides: specially commissioned articles, fora, an annotated internet guide, news in context, downloads and shopping. The site enjoys healthy traffic and the Britannica's CD-ROM interacts synergistically with its contents (through hyperlinks).

Yet, recently, the Britannica had to fire hundreds of workers (in its web division) and a return to a pay-for-content model is contemplated. What went wrong again? Internet advertising did. The Britannica's revenue model was based on monetizing eyeballs, to use a faddish refrain. When the perpetuum mobile of "advertisers pay for content and users get it free" crumbled - the Britannica found itself in familiar dire straits.

Is there a lesson to be learned from this arduous and convoluted tale? Are works of reference not self-supporting regardless of the revenue model (subscription, ad-based, print, CD-ROM)? This might well be the case.

Classic works of reference - from Diderot to the Encarta - offered a series of advantages to their users:

1. Authority - Works of reference are authored by experts in their fields and peer-reviewed. This ensures both objectivity and accuracy.
2. Accessibility - Huge amounts of material were assembled under one "roof". This abolished the need to scour numerous sources of variable quality to obtain the data one needed.
3. Organization - This pile of knowledge was organized in a convenient and recognizable manner (alphabetically or by subject)

Moreover, authoring an encyclopaedia was such a daunting and expensive task that only states, academic institutions, or well-funded businesses were able to produce them. At any given period there was a dearth of reliable encyclopaedias, which exercised a monopoly on the dissemination of knowledge. Competitors were few and far between. The price of these tomes was, therefore, always exorbitant but people paid it to secure education for their children and a fount of knowledge at home. Hence the long gone phenomenon of "door to door encyclopaedia salesmen" and instalment plans.

Yet, all these advantages were eroded to fine dust by the Internet. The web offers a plethora of highly authoritative information authored and released by the leading names in every field of human knowledge and endeavour. The Internet, is, in effect, an encyclopaedia - far more detailed, far more authoritative, and far more comprehensive than any encyclopaedia can ever hope to be. The web is also fully accessible and fully searchable. What it lacks in organization it compensates in breadth and depth and recently emergent subject portals (directories such as Yahoo! or The Open Directory) have become the indices of the Internet. The aforementioned anti-competition barriers to entry are gone: web publishing is cheap and immediate. Technologies such as web communities, chat, and e-mail enable massive collaborative efforts. And, most important, the bulk of the Internet is free. Users pay only the communication costs.

The long-heralded transition from free content to fee-based information may revive the fortunes of online reference vendors. But as long as the Internet - with its 2,000,000,000 (!) visible pages (and 5 times as many pages in its databases) - is free, encyclopaedias have little by way of a competitive advantage.

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Will Content Ever be Profitable

THE CURRENT WORRIES

1. Content Suppliers

The Ethos of Free Content

Content Suppliers is the underprivileged sector of the Internet. They all lose money (even sites which offer basic, standardized goods - books, CDs), with the exception of sites proffering sex or tourism. No user seems to be grateful for the effort and resources invested in creating and distributing content. The recent breakdown of traditional roles (between publisher and author, record company and singer, etc.) and the direct access the creative artist is gaining to its paying public may change this attitude of ingratitude but hitherto there are scarce signs of that. Moreover, it is either quality of presentation (which only a publisher can afford) or ownership and (often shoddy) dissemination of content by the author. A really qualitative, fully commerce enabled site costs up to 5,000,000 USD, excluding site maintenance and customer and visitor services. Despite these heavy outlays, site designers are constantly criticized for lack of creativity or for too much creativity. More and more is asked of content purveyors and creators. They are exploited by intermediaries, hitchhikers and other parasites. This is all an off-shoot of the ethos of the Internet as a free content area.

Most of the users like to surf (browse, visit sites) the net without reason or goal in mind. This makes it difficult to apply to the web traditional marketing techniques.

What is the meaning of "targeted audiences" or "market shares" in this context? If a surfer visits sites which deal with aberrant sex and nuclear physics in the same session - what to make of it?

Moreover, the public and legislative backlash against the gathering of surfer's data by Internet ad agencies and other web sites - has led to growing ignorance regarding the profile of Internet users, their demography, habits, preferences and dislikes.

"Free" is a key word on the Internet : it used to belong to the US Government and to a bunch of universities. Users like information, with emphasis on news and data about new products. But they do not like to shop on the net - yet. Only 38% of all surfers made a purchase during 1998.

It would seem that users will not pay for content unless it is unavailable elsewhere or qualitatively rare or made rare. One way to "rarefy" content is to review and rate it.

2. Quality-rated Content

There is a long term trend of clutter-breaking website-rating and critique. It may have a limited influence on the consumption decisions of some users and on their willingness to pay for content. Browsers already sport "What's New" and "What's Hot" buttons. Most Search Engines and directories recommend specific sites. But users are still cautious. Studies discovered that no user, no matter how heavy, has consistently re-visited more than 200 sites, a minuscule number. Some recommendation services often produce random - at times, wrong - selections for their users. There are also concerns regarding privacy issues. The backlash against Amazon's "readers circles" is an example. Web Critics, who work today mainly for the printed press, publish their wares on the net and collaborate with intelligent software which hyperlinks to web sites, recommends them and refers users to them. Some web critics (guides) became identified with specific applications - really, expert systems -which incorporate their knowledge and experience. Most volunteer-based directories (such as the "Open Directory" and the late "Go" directory) work this way.

The flip side of the coin of content consumption is investment in content creation, marketing, distribution and maintenance.

3. The Money

Where is the capital needed to finance content likely to come from?

Again, there are two schools:

According to the first, sites will be financed through advertising - and so will search engines and other applications accessed by users.

Certain ASPs (Application Service Providers which rent out access to application software which resides on their servers) are considering this model.

The recent collapse in online advertising rates and click-through rates raised serious doubts regarding the validity and viability of this model. Marketing gurus, such as Seth Godin went as far as declaring "interruption marketing" (=ads and banners) dead.

The second approach is simpler and allows for the existence of non-commercial content.

It proposes to collect negligible sums (cents or fractions of cents) from every user for every visit ("micro-payments"). These accumulated cents will enable the site-owners to update and to maintain them and encourage entrepreneurs to develop new content and invest in it. Certain content aggregators (especially of digital textbooks) have adopted this model (Questia, Fathom).

The adherents of the first school point to the 5 million USD invested in advertising during 1995 and to the 60 million or so invested during 1996.

Its opponents point exactly at the same numbers : ridiculously small when contrasted with more conventional advertising modes. The potential of advertising on the Net is limited to 1.5 billion USD annually in 1998, thundered the pessimists. The actual figure was double the prediction but still woefully small and inadequate to support the internet's content development. Compare these figures to the sale of Internet software (4 billion), Internet hardware (3 billion), Internet access provision (4.2 billion in 1995 alone!).

Even if online advertising were to be restored to its erstwhile glory days, other bottlenecks remain. Advertising encourages the consumer to interact and to initiate the delivery of a product to him. This - the delivery phase - is a slow and enervating epilogue to the exciting affair of ordering online. Too many consumers still complain of late delivery of the wrong or defective products.

The solution may lie in the integration of advertising and content. The late Pointcast, for instance, integrated advertising into its news broadcasts, continuously streamed to the user's screen, even when inactive (it had an active screen saver and ticker in a "push technology"). Downloading of digital music, video and text (e-books) leads to the immediate gratification of consumers and increases the efficacy of advertising.

Whatever the case may be, a uniform, agreed upon system of rating as a basis for charging advertisers, is sorely needed. There is also the question of what does the advertiser pay for? The rates of many advertisers (Procter and Gamble, for instance) are based not on the number of hits or impressions (=entries, visits to a site). - but on the number of the times that their advertisement was hit (page views), or clicked through.

Finally, there is the paid subscription model - a flop to judge by the experience of the meagre number of sites of venerable and leading newspapers that are on a subscription basis. Dow Jones (Wall Street Journal) and The Economist. Only two.

All this is not very promising. But one should never forget that the Internet is probably the closest thing we have to an efficient market. As consumers refuse to pay for content, investment will dry up and content will become scarce (through closures of web sites). As scarcity sets in, consumer may reconsider.

Your article deals with the future of the Internet as a medium. Will it be able to support its content creation and distribution operations economically?

If the Internet is a budding medium - then we should derive great benefit from a study of the history of its predecessors.

The Future History of the Internet a Medium

The internet is simply the latest in a series of networks which revolutionized our lives. A century before the internet, the telegraph, the railways, the radio and the telephone have been similarly heralded as "global" and transforming. Every medium of communications goes through the same evolutionary cycle:

Anarchy

The Public Phase

At this stage, the medium and the resources attached to it are very cheap, accessible, under no regulatory constraints. The public sector steps in : higher education institutions, religious institutions, government, not for profit organizations, non governmental organizations (NGOs), trade unions, etc. Bedevilled by limited financial resources, they regard the new medium as a cost effective way of disseminating their messages.

The Internet was not exempt from this phase which ended only a few years ago. It started with a complete computer anarchy manifested in ad hoc networks, local networks, networks of organizations (mainly universities and organs of the government such as DARPA, a part of the defence establishment, in the USA). Non commercial entities jumped on the bandwagon and started sewing these networks together (an activity fully subsidized by government funds). The result was a globe encompassing network of academic institutions. The American Pentagon established the network of all networks, the ARPANET. Other government departments joined the fray, headed by the National Science Foundation (NSF) which withdrew only lately from the Internet.

The Internet (with a different name) became semi-public property - with access granted to the chosen few.

Radio took precisely this course. Radio transmissions started in the USA in 1920. Those were anarchic broadcasts with no discernible regularity. Non commercial organizations and not for profit organizations began their own broadcasts and even created radio broadcasting infrastructure (albeit of the cheap and local kind) dedicated to their audiences. Trade unions, certain educational institutions and religious groups commenced "public radio" broadcasts.

The Commercial Phase

When the users (e.g., listeners in the case of the radio, or owners of PCs and modems in the case of the Internet) reach a critical mass - the business sector is alerted. In the name of capitalist ideology (another religion, really) it demands "privatization" of the medium. This harps on very sensitive strings in every Western soul: the efficient allocation of resources which is the result of competition. Corruption and inefficiency are intuitively associated with the public sector ("Other People's Money" - OPM). This, together with the ulterior motives of members of the ruling political echelons (the infamous American Paranoia), a lack of variety and of catering to the tastes and interests of certain audiences and the automatic equation of private enterprise with democracy lead to a privatization of the young medium.

The end result is the same: the private sector takes over the medium from "below" (makes offers to the owners or operators of the medium that they cannot possibly refuse) - or from "above" (successful lobbying in the corridors of power leads to the appropriate legislation and the medium is "privatized"). Every privatization - especially that of a medium - provokes public opposition. There are (usually founded) suspicions that the interests of the public are compromised and sacrificed on the altar of commercialization and rating.

Fears of monopolization and cartelization of the medium are evoked - and proven correct in due course. Otherwise, there is fear of the concentration of control of the medium in a few hands. All these things do happen - but the pace is so slow that the initial fears are forgotten and public attention reverts to fresher issues.

A new Communications Act was enacted in the USA in 1934. It was meant to transform radio frequencies into a national resource to be sold to the private sector which was supposed to use it to transmit radio signals to receivers. In other words : the radio was passed on to private and commercial hands. Public radio was doomed to be marginalized.

The American administration withdrew from its last major involvement in the Internet in April 1995, when the NSF ceased to finance some of the networks and, thus, privatized its hitherto heavy involvement in the net.

A new Communications Act was legislated in 1996. It permitted "organized anarchy". It allowed media operators to invade each other's territories. Phone companies were allowed to transmit video and cable companies were allowed to transmit telephony, for instance. This was all phased over a long period of time - still, it was a revolution whose magnitude is difficult to gauge and whose consequences defy imagination. It carries an equally momentous price tag - official censorship. "Voluntary censorship", to be sure, somewhat toothless standardization and enforcement authorities, to be sure - still, a censorship with its own institutions to boot. The private sector reacted by threatening litigation - but, beneath the surface it is caving in to pressure and temptation, constructing its own censorship codes both in the cable and in the internet media.

Institutionalization

This phase is the next in the Internet's history, though, it seems, few realize it.

It is characterized by enhanced activities of legislation. Legislators, on all levels, discover the medium and lurch at it passionately. Resources which were considered "free", suddenly are transformed to "national treasures not to be dispensed with cheaply, casually and with frivolity".

It is conceivable that certain parts of the Internet will be "nationalized" (for instance, in the form of a licensing requirement) and tendered to the private sector. Legislation will be enacted which will deal with permitted and disallowed content (obscenity ? incitement ? racial or gender bias ?) No medium in the USA (not to mention the wide world) has eschewed such legislation. There are sure to be demands to allocate time (or space, or software, or content, or hardware) to "minorities", to "public affairs", to "community business". This is a tax that the business sector will have to pay to fend off the eager legislator and his nuisance value.

All this is bound to lead to a monopolization of hosts and servers. The important broadcast channels will diminish in number and be subjected to severe content restrictions. Sites which will refuse to succumb to these requirements - will be deleted or neutralized. Content guidelines (euphemism for censorship) exist, even as we write, in all major content providers (CompuServe, AOL, Yahoo!-Geocities, Tripod, Prodigy).

The Bloodbath

This is the phase of consolidation. The number of players is severely reduced. The number of browser types will settle on 2-3 (Netscape, Microsoft and Opera?). Networks will merge to form privately owned mega-networks. Servers will merge to form hyper-servers run on supercomputers in "server farms". The number of ISPs will be considerably cut. 50 companies ruled the greater part of the media markets in the USA in 1983. The number in 1995 was 18. At the end of the century they will number 6.

This is the stage when companies - fighting for financial survival - strive to acquire as many users/listeners/viewers as possible. The programming is shallowed to the lowest (and widest) common denominator. Shallow programming dominates as long as the bloodbath proceeds.

From Rags to Riches

Tough competition produces four processes:

1. A Major Drop in Hardware Prices

This happens in every medium but it doubly applies to a computer-dependent medium, such as the Internet. Computer technology seems to abide by "Moore's Law" which says that the number of transistors which can be put on a chip doubles every 18 months. As a result of this miniaturization, computing power quadruples every 18 months and an exponential series ensues. Organic-biological-DNA computers, quantum computers, chaos computers - prompted by vast profits and spawned by inventive genius will ensure the continued applicability of Moore's Law.

The Internet is also subject to "Metcalf's Law".

It says that when we connect N computers to a network - we get an increase of N to the second power in its computing processing power. And these N computers are more powerful every year, according to Moore's Law. The growth of computing powers in networks is a multiple of the effects of the two laws. More and more computers with ever increasing computing power get connected and create an exponential 16 times growth in the network's computing power every 18 months.

2. Content related Fees

This was prevalent in the Net until recently. Even potentially commercial software can still be downloaded for free. In many countries television viewers still pay for television broadcasts - but in the USA and many other countries in the West, the basic package of television channels comes free of charge.

As users / consumers form a habit of using (or consuming) the software - it is commercialized and begins to carry a price tag. This is what happened with the advent of cable television : contents are sold for subscription or per usage (Pay Per View - PPV) fees.

Gradually, this is what will happen to most of the sites and software on the Net. Those which survive will begin to collect usage fees, access fees, subscription fees, downloading fees and other, appropriately named, fees. These fees are bound to be low - but it is the principle that counts. Even a few cents per transaction may accumulate to hefty sums with the traffic which characterizes some web sites on the Net (or, at least its more popular locales).

3. Increased User Friendliness

As long as the computer is less user friendly and less reliable (predictable) than television - less of a black box - its potential (and its future) is limited. Television attracts 3.5 billion users daily. The Internet stands to attract - under the most exuberant scenario - less than one tenth of this number of people. The only reasons for this disparity are (the lack of) user friendliness and reliability. Even browsers, among the most user friendly applications ever -are not sufficiently so. The user still needs to know how to use a keyboard and must possess some basic acquaintance with the operating system. The more mature the medium, the more friendly it becomes. Finally, it will be operated using speech or common language. There will be room left for user "hunches" and built in flexible responses.

4. Social Taxes

Sooner or later, the business sector has to mollify the God of public opinion with offerings of political and social nature. The Internet is an affluent, educated, yuppie medium. It requires literacy and numeracy, live interest in information and its various uses (scientific, commercial, other), a lot of resources (free time, money to invest in hardware, software and connect time). It empowers - and thus deepens the divide between the haves and have-nots, the developed and the developing world, the knowing and the ignorant, the computer illiterate.

In short: the Internet is an elitist medium. Publicly, this is an unhealthy posture. "Internetophobia" is already discernible. People (and politicians) talk about how unsafe the Internet is and about its possible uses for racial, sexist and pornographic purposes. The wider public is in a state of awe.

So, site builders and owners will do well to begin to improve their image: provide free access to schools and community centres, bankroll internet literacy classes, freely distribute contents and software to educational institutions, collaborate with researchers and social scientists and engineers. In short: encourage the view that the Internet is a medium catering to the needs of the community and the underprivileged, a mostly altruist endeavour. This also happens to make good business sense by educating and conditioning a future generation of users. He who visited a site when a student, free of charge - will pay to do so when made an executive. Such a user will also pass on the information within and without his organization. This is called media exposure. The future will, no doubt, will be witness to public Internet terminals, subsidized ISP accounts, free Internet classes and an alternative "non-commercial, public" approach to the Net. This may prove to be one more source of revenue to content creators and distributors.

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Jamaican Overdrive - LDC's and LCD's

OverDrive - an e-commerce, software conversion and e-publishing applications leader - has just expanded an e-book technology centre by adding 200 e-book editors. This happened in Montego Bay, Jamaica - one of the less privileged spots on earth. The centre now provides a vertical e-publishing service - from manuscript editing to conversion to Quark (for POD), Adobe, and MS Reader ebook formats. Thus, it is not confined to the classic sweatshop cum production centre so common in Less Developed Countries (LDC's). It is a full fledged operation with access to cutting edge technology.

The Jamaican OverDrive is the harbinger of things to come and the outcome of a confluence of a few trends.

First, there is the insatiable appetite big publishers (such as McGraw-Hill, Random House, and Harper Collins) have developed to converting their hitherto inertial backlists into e-books. Gone are the days when e-books were perceived as merely a novel form of packaging. Publishers understood the cash potential this new distribution channel offers and the value added to stale print tomes in the conversion process. This epiphany is especially manifest in education and textbook publishing.

Then there is the maturation of industry standards, readers and audiences. Both the supply side (title lists) and the demand side (readership) have increased. Giants like Microsoft have successfully entered the fray with new e-book reader applications, clearer fonts, and massive marketing. Retailers - such as Barnes and Noble - opened their gates to e-books. A host of independent publishers make good use of the negligible-cost distribution channel that the Internet is. Competition and positioning are already fierce - a good sign.

The Internet used to be an English, affluent middle-class, white collar, male phenomenon. It has long lost these attributes. The digital divides that opened up with the early adoption of the Net by academe and business - are narrowing. Already there are more women than men users and English is the language of less than half of all web sites. The wireless Net will grant developing countries the chance to catch up.

Astute entrepreneurs are bound to take advantage of the business-friendly profile of the manpower and investment-hungry governments of some developing countries. It is not uncommon to find a mastery of English, a college degree in the sciences, readiness to work outlandish hours at a fraction of wages in Germany or the USA - all combined in one employee in these deprived countries. India has sprouted a whole industry based on these competitive endowments.

Here is how Steve Potash, OverDrive's CEO, explains his daring move in OverDrive's press release dated May 22, 2001:

"Everyone we are partnering with in the US and worldwide has been very excited and delighted by the tremendous success and quality of eBook production from OverDrive Jamaica. Jamaica has tremendous untapped talent in its young people. Jamaica is the largest

English-speaking nation in the Caribbean and their educational and technical programs provide us with a wealth of quality candidates for careers in electronic publishing. We could not have had this success without the support and responsiveness of the Jamaican government and its agencies. At every stage the agencies assisted us in opening our technology centre and staffing it with trained and competent eBook professionals. OverDrive Jamaica will be pioneering many of the advances for extending books, reference materials, textbooks, literature and journals into new digital channels - and will shortly become the foremost centre for eBook automation serving both US and international markets".

Druanne Martin, OverDrive's Director of publishing services elaborates:

"With Jamaica and Cleveland, Ohio sharing the same time zone (EST), we have our US and Jamaican production teams in sync. Jamaica provides a beautiful and warm climate, literally, for us to build long-term partnerships and to invite our publishing and content clients to come and visit their books in production".

The Jamaican Minister of Industry, Commerce and Technology, the Hon. Phillip Paulwell reciprocates:

"We are proud that OverDrive has selected Jamaica to extend its leadership in eBook technology. OverDrive is benefiting from the investments Jamaica has made in developing the needed infrastructure for IT companies to locate and build skilled workforces here."

There is nothing new in outsourcing back office work (insurance claims processing, air ticket reservations, medical records maintenance) to third world countries, such as (the notable example) India. Research and Development is routinely farmed out to aspiring first world countries such as Israel and Ireland. But OverDrive's Jamaican facility is an example of something more sophisticated and more durable. Western firms are discovering the immense pools of skills, talent, innovation, and top notch scientific and other education often offered even by the poorest of nations. These multinationals entrust the locals now with more than keyboarding and responding to customer queries using fake names. The Jamaican venture is a business partnership. In a way, it is a topsy-turvy world. Digital animation is produced in India and consumed in the States. The low compensation of scientists attracts the technology and R&D arms of the likes of General Electric to Asia and Intel to Israel. In other words, there are budding signs of a reversing brain drain - from West to East.

E-publishing is at the forefront of software engineering, e-consumerism, intellectual property technologies, payment systems, conversion applications, the mobile Internet, and, basically, every important trend in network and computing and digital content. Its migration to warmer and cheaper climates may be inevitable. OverDrive sounds happy enough.

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An Ambarrassment of Riches

<http://www.doi.org/>

The Internet is too rich. Even powerful and sophisticated search engines, such as Google, return a lot of trash, dead ends, and Error 404's in response to the most well-defined query, Boolean operators and all. Directories created by human editors - such as Yahoo! or the Open Directory Project - are often overwhelmed by the amount of material out there. Like the legendary blob, the Internet is clearly out of classificatory control. Some web sites - like Suite101 - have introduced the old and tried Dewey subject classification system successfully used in non-virtual libraries for more than a century. Books - both print and electronic - (actually, their publishers) get assigned an ISBN (International Standard Book Number) by national agencies. Periodical publications (magazines, newsletters, bulletins) sport an ISSN (International Serial Standard Number). National libraries dole out CIP's (Cataloguing in Publication numbers), which help lesser outfits to catalogue the book upon arrival. But the emergence of new book formats, independent publishing, and self publishing has strained this already creaking system to its limits. In short: the whole thing is fast developing into an awful mess.

Resolution is one solution.

Resolution is the linking of identifiers to content. An identifier can be a word, or a phrase. RealNames implemented this approach and its proprietary software is now incorporated in most browsers. The user types a word, brand name, phrase, or code, and gets re-directed to a web site with the appropriate content. The only snag: RealNames identifiers are for sale. Thus, its identifiers are not guaranteed to lead to the best, only, or relevant resource. Similar systems are available in many languages. Nexet, for example, provides such a resolution service in Hebrew.

The Association of American Publishers (AAP) has an Enabling Technologies Committee. Fittingly, at the Frankfurt Book Fair of 1997, it announced the DOI (Digital Object Identifier) initiative. An International DOI Foundation (IDF) was set up and invited all publishers - American and non-American alike - to apply for a unique DOI prefix. DOI is actually a private case of a larger system of "handles" developed by the CNRI (Corporation for National Research Initiatives). Their "Handle Resolver" is a browser plug-in software, which re-directs their handles to URL's or other pieces of data, or content. Without the Resolver, typing in the handle simply directs the user to a few proxy servers, which "understand" the handle protocols.

The interesting (and new) feature of the system is its ability to resolve to MULTIPLE locations (URL's, or data, or content). The same identifier can resolve to a Universe of inter-related information (effectively, to a mini-library). The content thus resolved need not be limited to text. Multiple resolution works with audio, images, and even video.

The IDF's press release is worth some extensive quoting:

"Imagine you're the manager of an Internet company reading a story online in the "Wall Street Journal" written by Stacey E. Bressler, a co-author of Communities of Commerce, and at the end of the story there is a link to purchase options for the book.

Now imagine you are an online retailer, a syndicator or a reporter for an online news service and you are reading a review in "Publishers Weekly" about Communities of Commerce and you run across a link to related resources.

And imagine you are in Buenos Aires, and in an online publication you encounter a link to "D-Lib Magazine", an electronic journal produced in Washington, D.C. which offers you locale-specific choices for downloading an article.

The above examples demonstrate how multiple resolution can present you with a list of links from within an electronic document or page. The links beneath the labels - URLs and email addresses - would all be stored in the DOI System, and multiple resolution means any or all of those links can be displayed for you to select from in one menu. Any combination of links to related resources can be included in these menus.

Capable of providing much richer experiences than single resolution to a URL, Multiple Resolution operates on the premise that content, not its location, is identified. In other words, where content and related resources reside is secondary information. Multiple Resolution enables content owners and distributors to identify their intellectual property with bound collections of related resources at a hyperlink's point of departure, instead of requiring a user to leave the page to go to a new location for further information.

A content owner controls and manages all the related resources in each of these menus and can determine which information is accessible to each business partner within the supply chain. When an administrator changes any facet of this information, the change is simultaneous on all internal networks and the Internet. A DOI is a permanent identifier, analogous to a telephone number for life, so tomorrow and years from now a user can locate the product and related resources wherever they may have been moved or archived to."

The IDF provides a limited, text-only, online demonstration. When sweeping with the cursor over a linked item, a pop-down menu of options is presented. These options are pre-defined and customized by the content creators and owners. In the first example above (book purchase options) the DOI resolves to retail outlets (categorized by book formats), information about the title and the author, digital rights management information (permissions), and more. The DOI server generates this information in "real time", "on the fly". But it is the author, or (more often) the publisher that choose the information, its modes of presentation, selections, and marketing and sales data. The ingenuity is in the fact that the DOI server's files and records can be updated, replaced, or deleted. It does not affect the resolution path - only the content resolved to.

Which brings us to e-publishing.

The DOI Foundation has unveiled the DOI-EB (EB stands for e-books) Initiative in the Book Expo America Show 2001, to, in their words:

"Determine requirements with respect to the application of unique identifiers to eBooks
Develop proofs-of-concept for the use of DOIs with eBooks
Develop technical demonstrations, possibly including a prototype eBook Registration Agency."

It is backed by a few major publishers, such as McGraw-Hill, Random House, Pearson, and Wiley.

This ostensibly modest agenda conceals a revolutionary and ambitious attempt to unambiguously identify the origin of digital content (in this case, e-books) and link a universe of information to each and every ID number. Aware of competing efforts underway, the DOI Foundation is actively courting the likes of "indecs" (Interoperability of Data in E-Commerce System) and OeBF (Open e-Book). Companies, like Enpia Systems of South Korea (a DOI Registration Agency), have already implemented a DOI-cum-indecs system. On November 2000, the APA's (American Publishers' Association) Open E-book Publishing Standards Initiative has recommended to use DOI as the primary identification system for e-books' metadata. The MPEG (Motion Pictures Experts Group) is said to be considering DOI seriously in its efforts to come up with numbering and metadata standards for digital videos. A DOI can be expressed as a URN (Universal Resource Name - IETF's syntax for generic resources) and is compatible with OpenURL (a syntax for embedding parameters such as identifiers and metadata in links). Shortly, a "Namespace Dictionary" is to be published. It will encompass 800 metadata elements and will tackle e-books, journals, audio, and video. A working group was started to develop a "services definition" interface (i.e., to allow web-enabled systems, especially e-commerce and m-commerce systems, to deploy DOI).

The DOI, in other words, is designed to be all-inclusive and all-pervasive. Each DOI number is made of a prefix, specific to a publisher, and a suffix, which could end up painlessly assimilating the ISBN and ISSN (or any other numbering and database) system.

Thus, a DOI can be assigned to every e-book based on its ISBN and to every part (chapter, section, or page) of every e-book. This flexibility could support Pay Per View models (such as Questia's or Fathom's), POD (Print On Demand), and academic "course packs", which comprise material from many textbooks, whether on digital media or downloadable. The DOI, in other words, can underlie D-CMS (Digital Content Management Systems) and Electronic Catalogue ID Management Systems.

Moreover, the DOI is a paradigm shift (though, conceptually, it was preceded by the likes of the UPC code and the ISO's HyTime multimedia standard). It blurs the borders between types of digital content. Imagine an e-novel with the video version of the novel, the sound track, still photographs, a tourist guide, an audio book, and other digital content embedded in it. Each content type and each segment of each content type can be identified and tagged separately and, thus, sold separately - yet all under the umbrella of the same DOI! The nightmare of DRM (digital rights management) may be finally over.

But the DOI is much more than a sophisticated tagging technology. It comes with multiple resolution (see ["Embarrassment of Riches - Part I"](#)). In other words, as opposed to the URL (Universal Resource Locator) - it is generated dynamically, "on the fly", by the user, and is not "hard coded" into the web page. This is because the DOI identifies content - not its location. And while the URL resolves to a single web page - the DOI resolves to a lot more in the form of publisher-controlled (ONIX-XML) "metadata" in a pop-up (Javascript or other) screen. The metadata include everything from the author's name through the book's title, edition, blurbs, sample chapters, other promotional material, links to related products, a rights and permissions profile, e-mail contacts, and active links to retailers' web pages. Thus, every book-related web page becomes a full fledged book retailing gateway. The "anchor document" (in which the DOI is embedded) remains uncluttered. ONIX 2.0 may contain standard metadata fields and extensions specific to e-publishing and e-books.

This latter feature - the ability to link to the systems of retailers, distributors, and other types of vendors - is the "barcode" function of the DOI. Like barcode technology, it helps to automate the supply chain, and update the inventory, ordering, billing and invoicing, accounting, and re-ordering databases and functions. Besides tracking content use and distribution, the DOI allows to seamlessly integrate hitherto disparate e-commerce technologies and facilitate interoperability among DRM systems.

The resolution itself can take place in the client's browser (using a software plug-in), in a proxy server, or in a central, dynamic server. Resolving from the client's PC, e-book reader, or PDA has the advantage of being able to respond to the user's specific condition (location, time of day, etc.). No plug-in is required when a proxy server HTTP is used - but then the DOI becomes just another URL, embedded in the page when it is created and not resolved when the user clicks on it. The most user-friendly solution is, probably, for a central server to look up values in response to a user's prompt and serve her with cascading menus or links. Admittedly, in this option, the resolution tables (what DOI links to what URL's and to what content) is not really dynamic. It changes only with every server update and is static between updates. But this is a minor inconvenience. As it is, users are likely to respond with some trepidation to the need to install plug-ins and to the avalanche of information their single, innocuous, mouse click generates.

The DOI Foundation has compiled this impressive list of benefits - and beneficiaries:

"Publishers to enable cross referencing to related information, control over metadata, viral distribution and sales, easy access to content, sale of granular content

Consumers to increase value for time and money, and purchase options

Distributors to facilitate sale and distribution of materials as well as user needs

Retailers to build related materials on their sites, heighten consumer usability and copyright protection

Conversion Houses/Wholesaler Repositories to increase access to and use of metadata

DRM Vendors/Rights Clearing Houses to enable interoperability and use of standards

Data Aggregators to enable compilation of primary and secondary content and print on demand

Trade Associations facilitate dialog on social level and attend to legal and technical perspectives pertaining to multiple versions of electronic content

eBook software Developers to enable management of personal collections of eBooks including purchase receipt information as reference for quick return to retailer
Content Management System Vendors to enable internal synching with external usage
Syndicators to drive sales to retailers, add value to retail online store/sales, and increase sales for publishers"

The DOI is assigned to publishers by Registration Agencies (of which there are currently three - CrossRef and Content Directions in the States and the aforementioned Enpia Systems in Asia). It is already widely used to cross reference almost 5,000 periodicals with a database of 3,000,000 citations. The price is steep - it costs a publisher \$200 to get a prefix and submit DOI's to the registry. But as Registration Agencies proliferate, competition is bound to slash these prices precipitously.

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The Fall and Fall of the P-Zine

The circulation of print magazines has declined precipitously in the last few years. This dissolution of subscriber bases has accelerated dramatically as economic recession set in. But a diminishing wealth effect is only partly to blame. The managements of printed periodicals - from dailies to quarterlies - failed miserably to grasp the Internet's potential and potential threat. They were fooled by the lack of friendly and cheap e-reading devices into believing that old habits die hard. They do - but magazine reading is not habit forming. Readers' loyalties are fickle and shift according to content and price. The Web offers cornucopian and niche-targeted [content free of charge](#) or very cheaply. This is hard to beat and is getting harder by the day as natural selection among dot.bombs spares only quality content providers.

Still, the print media rely on a defunct business model: ad-financed content aggregation. Content producers (known as journalists or reporters) are paid for their professional work (their writings). Editors then assemble this output and homogenize it. Finally, these articles and op-ed pieces find their predestined place in rigid, spatially-delimited rubrics in the paper or magazine. Both pillars of this strategy are crumbling: advertising dollars have shifted decisively "below the line" (into word-of-mouth and loyalty campaigns, for instance) and content is now prodigiously produced by prolific bloggers and what CNN calls iReporters. Vanity online publishing trumped traditional print publishing.

The print media should jump on the wagon: they should solicit contributions from citizen journalists, bloggers, i-reporters, and e-columnists. These content providers are likely to be satisfied with a mere byline for their remuneration (seeing their name in print!) Having thus cut their costs by leveraging the public's vanity, newspapers and magazines will be able to concentrate on customer relations (via their internet properties and social networking tools) and on what they do best: coherent aggregation, contextual commentary, and communal branding.

Outside the box, there are other solutions and models.

Consider [Ploughshares](#), the Literary Journal.

It is a venerable, not for profit, print journal published by Emerson College, now marking its 37th anniversary. A few years ago, it inaugurated its web sibling. The project consumed three years and \$125,000 (a grant from the Wallace-Reader's Digest Funds). Every title Ploughshares has ever published was indexed (over 18,000 journal pages digitized). In all, the "website offers free access to over 3,500 poems and short stories from past and current issues".

The more than 2000 (!) authors ever published in Ploughshares maintain a personal web pages comprising biographical notes, press releases, new books and events announcements and links to other web sites. This is the Yahoo! formula. Content generated by the authors has thus transformed Ploughshares into a leading literary portal.

But Ploughshares did not stop at this standard features. A "bookshelf" links to book reviews contributed online (and augmented by the magazine's own prestigious offerings). An annotated bookstore is just a step away (though Ploughshares' web site does not include one hitherto). The next best thing is a rights-management application used by the journal's authors to grant online publishing permissions for their work to third parties.

No print literary magazine can beat this one stop shop. So, how can print publications defend themselves?

By being creative and by not conceding defeat is how.

Consider WuliWeb's example of thinking outside the printed box. Its timing was bad – immediately preceding the bursting of the dot.com bubble. But, the idea was sound.

Wuliweb (owned by AirClic) is a simple online application which enables its users to "send, save and share material from print publications". Participating magazines and newspapers print "WuliCodes" on their (physical) pages and WuliWeb subscribers barcode-scan, or manually enter them into their online "Content Manager" via keyboard, PDA, pager, cell phone, or fixed phone (using a PIN). The service is free (paid for by the magazine publishers and advertisers) and, according to WuliWeb, offers these advantages to its users:

"Once you choose to use WuliWeb's free service, you will no longer have to laboriously 'tear and share' print articles or ads that you want to archive or share with colleagues or friends. You will be able to store material sourced from print publications permanently in your own secure, electronic files, and you can share this material instantly with any number of people. Magazine and Newspaper Publishers will now have the ability to distribute their online content more widely and to offer a richer experience to their readers. Advertisers will be able to deploy dynamic and media-rich content to attract and convert customers, and will be able to communicate more completely with their customers."

Links to the shared material are stored in WuliWeb's central database and users gain access to them by signing up for a (free) WuliWeb account. Thus, the user's mailbox is unencumbered by huge downloads. Moreover, WuliWeb allows for a keywords-based search of articles saved.

Perhaps the only serious drawback is that WuliWeb provides its users only with LINKS to content stored on publishers' web sites. It is a directory service - not a full text database. This creates dependence. Links may get broken. Whole web sites vanish. Magazines and their publishers go under. All the more reason for publishers to revive this service and make it their own.

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The Internet and the Library

"In this digital age, the custodians of published works are at the center of a global copyright controversy that casts them as villains simply for doing their job: letting people borrow books for free."

([ZDNet](#) quoted by "Publisher's Lunch on July 13, 2001)

It is amazing that the traditional archivists of human knowledge - the libraries - failed so spectacularly to ride the tiger of the Internet, that epitome and apex of knowledge creation and distribution. At first, libraries, the inertial repositories of printed matter, were overwhelmed by the rapid pace of technology and by the ephemeral and anarchic content it spawned. They were reduced to providing access to dull card catalogues and unimaginative collections of web links. The more daring added online exhibits and digitized collections. A typical library web site is still comprised of static representations of the library's physical assets and a few quasi-interactive services.

This tendency - by both publishers and libraries - to inadequately and inappropriately pour old wine into new vessels is what caused the recent furor over e-books.

The lending of e-books to patrons appears to be a natural extension of the classical role of libraries: physical book lending. Libraries sought also to extend their archival functions to e-books. But librarians failed to grasp the essential and substantive differences between the two formats. E-books can be easily, stealthily, and cheaply copied, for instance. Copyright violations are a real and present danger with e-books. Moreover, e-books are not a tangible product. "Lending" an e-book - is tantamount to copying an e-book. In other words, e-books are not books at all. They are software products. Libraries have pioneered digital collections (as they have other information technologies throughout history) and are still the main promoters of e-publishing. But now they are at risk of becoming piracy portals.

Solutions are, appropriately, being borrowed from the software industry. NetLibrary has lately granted multiple user licences to a university library system. Such licences allow for unlimited access and are priced according to the number of the library's patrons, or the number of its reading devices and terminals. Another possibility is to implement the shareware model - a trial period followed by a purchase option or an expiration, a-la Rosetta's expiring e-book.

Distributor Baker & Taylor have unveiled at the recent ALA a prototype e-book distribution system jointly developed by ibooks and Digital Owl. It will be sold to libraries by B&T's Informata division and Reciprocal.

The annual subscription for use of the digital library comprises "a catalog of digital content, brandable pages and web based tools for each participating library to customize for their patrons. Patrons of participating libraries will then be able to browse digital content online, or download and check out the content they are most interested in. Content may be checked out for an extended period of time set by each library, including checking out eBooks from home." Still, it seems that B&T's approach is heavily influenced by software licencing ("one copy one use").

But, there is an underlying, fundamental incompatibility between the Internet and the library. They are competitors. One vitiates the other. Free Internet access and e-book reading devices in libraries notwithstanding - the Internet, unless harnessed and integrated by libraries, threatens their very existence by depriving them of patrons. Libraries, in turn, threaten the budding software industry we, misleadingly, call "e-publishing".

There are major operational and philosophical differences between physical and virtual libraries. The former are based on the tried and proven technology of print. The latter on the chaos we know as cyberspace and on user-averse technologies developed by geeks and nerds, rather than by marketers, users, and librarians.

Physical libraries enjoy great advantages, not the least being their habit-forming head start (2,500 years of first mover advantage). Libraries are hubs of social interaction and entertainment (the way cinemas used to be). Libraries have catered to users' reference needs in reference centres for centuries (and, lately, through Selective Dissemination of Information, or SDI). The war is by no means decided. "Progress" may yet consist of the assimilation of hi-tech gadgets by lo-tech libraries. It may turn out to be convergence at its best, as librarians become computer savvy - and computer types create knowledge and disseminate it.

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A Brief History of the Book

"The free communication of thought and opinion is one of the most precious rights of man; every citizen may therefore speak, write and print freely."

(French National Assembly, 1789)

I. What is a Book?

UNESCO's arbitrary and ungrounded definition of "book" is:

""Non-periodical printed publication of at least 49 pages excluding covers".

But a book, above all else, is a medium. It encapsulates information (of one kind or another) and conveys it across time and space. Moreover, as opposed to common opinion, it is - and has always been - a rigidly formal affair. Even the latest "innovations" are nothing but ancient wine in sparkling new bottles.

Consider the scrolling protocol. Our eyes and brains are limited readers-decoders. There is only that much that the eye can encompass and the brain interpret. Hence the need to segment data into cognitively digestible chunks. There are two forms of scrolling - lateral and vertical. The papyrus, the broadsheet newspaper, and the computer screen are three examples of the vertical scroll - from top to bottom or vice versa. The e-book, the microfilm, the vellum, and the print book are instances of the lateral scroll - from left to right (or from right to left, in the Semitic languages).

In many respects, audio books are much more revolutionary than e-books. They do not employ visual symbols (all other types of books do), or a straightforward scrolling method. E-books, on the other hand, are a throwback to the days of the papyrus. The text cannot be opened at any point in a series of connected pages and the content is carried only on one side of the (electronic) "leaf". Parchment, by comparison, was multi-paged, easily browseable, and printed on both sides of the leaf. It led to a revolution in publishing and to the print book. All these advances are now being reversed by the e-book. Luckily, the e-book retains one innovation of the parchment - the hypertext. Early Jewish and Christian texts (as well as Roman legal scholarship) was written on parchment (and later printed) and included numerous inter-textual links. The Talmud, for example, is made of a main text (the Mishna) which hyperlinks on the same page to numerous interpretations (exegesis) offered by scholars throughout generations of Jewish learning.

Another distinguishing feature of books is portability (or mobility). Books on papyrus, vellum, paper, or PDA - are all transportable. In other words, the replication of the book's message is achieved by passing it along and no loss is incurred thereby (i.e., there is no physical metamorphosis of the message).

The book is like a perpetuum mobile. It spreads its content virally by being circulated and is not diminished or altered by it. Physically, it is eroded, of course - but it can be copied faithfully. It is permanent.

Not so the e-book or the CD-ROM. Both are dependent on devices (readers or drives, respectively). Both are technology-specific and format-specific. Changes in technology - both in hardware and in software - are liable to render many e-books unreadable. And portability is hampered by battery life, lighting conditions, or the availability of appropriate infrastructure (e.g., of electricity).

II. The Constant Content Revolution

Every generation applies the same age-old principles to new "content-containers". Every such transmutation yields a great surge in the creation of content and its dissemination. The incunabula (the first printed books) made knowledge accessible (sometimes in the vernacular) to scholars and laymen alike and liberated books from the scriptoria and "libraries" of monasteries. The printing press technology shattered the content monopoly. In 50 years (1450-1500), the number of books in Europe surged from a few thousand to more than 9 million! And, as McLuhan has noted, it shifted the emphasis from the oral mode of content distribution (i.e., "communication") to the visual mode.

E-books are threatening to do the same. "Book ATMs" will provide Print on Demand (POD) services to faraway places. People in remote corners of the earth will be able to select from publishing backlists and front lists comprising millions of titles. Millions of authors are now able to realize their dream to have their work published cheaply and without editorial barriers to entry. The e-book is the Internet's prodigal son. The latter is the ideal distribution channel of the former. The monopoly of the big publishing houses on everything written - from romance to scholarly journals - is a thing of the past. In a way, it is ironic. Publishing, in its earliest forms, was a revolt against the writing (letters) monopoly of the priestly classes. It flourished in non-theocratic societies such as Rome, or China - and languished where religion reigned (such as in Sumeria, Egypt, the Islamic world, and Medieval Europe).

With e-books, content will once more become a collaborative effort, as it has been well into the Middle Ages. Authors and audience used to interact (remember Socrates) to generate knowledge, information, and narratives. Interactive e-books, multimedia, discussion lists, and collective authorship efforts restore this great tradition. Moreover, as in the not so distant past, authors are yet again the publishers and sellers of their work. The distinctions between these functions is very recent. E-books and POD partially help to restore the pre-modern state of affairs. Up until the 20th century, some books first appeared as a series of pamphlets (often published in daily papers or magazines) or were sold by subscription. Serialized e-books resort to these erstwhile marketing ploys. E-books may also help restore the balance between best-sellers and midlist authors and between fiction and textbooks. E-books are best suited to cater to niche markets, hitherto neglected by all major publishers.

III. Literature for the Millions

E-books are the quintessential "literature for the millions". They are cheaper than even paperbacks. John Bell (competing with Dr. Johnson) published "The Poets of Great Britain" in 1777-83. Each of the 109 volumes cost six shillings (compared to the usual guinea or more). The Railway Library of novels (1,300 volumes) costs 1 shilling apiece only eight decades later. The price continued to dive throughout the next century and a half. E-books and POD are likely to do unto paperbacks what these reprints did to originals. Some reprint libraries specialized in public domain works, very much like the bulk of e-book offering nowadays.

The plunge in book prices, the lowering of barriers to entry due to new technologies and plentiful credit, the proliferation of publishers, and the cutthroat competition among booksellers was such that price regulation (cartel) had to be introduced. Net publisher prices, trade discounts, list prices were all anti-competitive inventions of the 19th century, mainly in Europe. They were accompanied by the rise of trade associations, publishers organizations, literary agents, author contracts, royalties agreements, mass marketing, and standardized copyrights.

The sale of print books over the Internet can be conceptualized as the continuation of mail order catalogues by virtual means. But e-books are different. They are detrimental to all these cosy arrangements. Legally, an e-book may not be considered to constitute a "book" at all. Existing contracts between authors and publishers may not cover e-books. The serious price competition they offer to more traditional forms of publishing may end up pushing the whole industry to re-define itself. Rights may have to be re-assigned, revenues re-distributed, contractual relationships re-thought. Moreover, e-books have hitherto been to print books what paperbacks are to hardcovers - re-formatted renditions. But more and more authors are publishing their books primarily or exclusively as e-books. E-books thus threaten hardcovers and paperbacks alike. They are not merely a new format. They are a new mode of publishing.

Every technological innovation was bitterly resisted by Luddite printers and publishers: stereotyping, the iron press, the application of steam power, mechanical typesetting and typesetting, new methods of reproducing illustrations, cloth bindings, machine-made paper, ready-bound books, paperbacks, book clubs, and book tokens. Without exception, they relented and adopted the new technologies to their considerable commercial advantage. It is no surprise, therefore, that publishers were hesitant to adopt the Internet, POD, and e-publishing technologies. The surprise lies in the relative haste with which they came to adopt it, egged on by authors and booksellers.

IV. Intellectual Pirates and Intellectual Property

Despite the technological breakthroughs that coalesced to form the modern printing press - printed books in the 17th and 18th centuries were derided by their contemporaries as inferior to their laboriously hand-made antecedents and to the incunabula. One is reminded of the current complaints about the new media (Internet, e-books), its shoddy workmanship, shabby appearance, and the rampant piracy.

The first decades following the invention of the printing press, were, as the Encyclopedia Britannica puts it "a restless, highly competitive free for all ... (with) enormous vitality and variety (often leading to) careless work".

There were egregious acts of piracy - for instance, the illicit copying of the Aldine Latin "pocket books", or the all-pervasive piracy in England in the 17th century (a direct result of over-regulation and coercive copyright monopolies). Shakespeare's work was published by notorious pirates and infringers of emerging intellectual property rights. Later, the American colonies became the world's centre of industrialized and systematic book piracy. Confronted with abundant and cheap pirated foreign books, local authors resorted to freelancing in magazines and lecture tours in a vain effort to make ends meet.

Pirates and unlicensed - and, therefore, subversive - publishers were prosecuted under a variety of monopoly and libel laws (and, later, under national security and obscenity laws). There was little or no difference between royal and "democratic" governments. They all acted ruthlessly to preserve their control of publishing. John Milton wrote his passionate plea against censorship, *Areopagitica*, in response to the 1643 licensing ordinance passed by Parliament. The revolutionary Copyright Act of 1709 in England established the rights of authors and publishers to reap the commercial fruits of their endeavours exclusively, though only for a prescribed period of time.

V. As Readership Expanded

The battle between industrial-commercial publishers (fortified by ever more potent technologies) and the arts and craftsmanship crowd never ceased and it is raging now as fiercely as ever in numerous discussion lists, fora, tomes, and conferences. William Morris started the "private press" movement in England in the 19th century to counter what he regarded as the callous commercialization of book publishing. When the printing press was invented, it was put to commercial use by private entrepreneurs (traders) of the day. Established "publishers" (monasteries), with a few exceptions (e.g., in Augsburg, Germany and in Subiaco, Italy) shunned it and regarded it as a major threat to culture and civilization. Their attacks on printing read like the litanies against self-publishing or corporate-controlled publishing today.

But, as readership expanded (women and the poor became increasingly literate), market forces reacted. The number of publishers multiplied relentlessly. At the beginning of the 19th century, innovative lithographic and offset processes allowed publishers in the West to add illustrations (at first, black and white and then in color), tables, detailed maps and anatomical charts, and other graphics to their books. Battles fought between publishers-librarians over formats (book sizes) and fonts (Gothic versus Roman) were ultimately decided by consumer preferences. Multimedia was born. The e-book will, probably, undergo a similar transition from being the static digital rendition of a print edition - to being a lively, colorful, interactive and commercially enabled creature.

The commercial lending library and, later, the free library were two additional reactions to increasing demand. As early as the 18th century, publishers and booksellers expressed the fear that libraries will cannibalize their trade. Two centuries of accumulated experience demonstrate that the opposite has happened. Libraries have enhanced book sales and have become a major market in their own right.

VI. The State of Subversion

Publishing has always been a social pursuit and depended heavily on social developments, such as the spread of literacy and the liberation of minorities (especially, of women). As every new format matures, it is subjected to regulation from within and from without. E-books (and, by extension, digital content on the Web) will be no exception. Hence the recurrent and current attempts at regulation.

Every new variant of content packaging was labeled as "dangerous" at its inception. The Church (formerly the largest publisher of bibles and other religious and "earthly" texts and the upholder and protector of reading in the Dark Ages) castigated and censored the printing of "heretical" books (especially the vernacular bibles of the Reformation) and restored the Inquisition for the specific purpose of controlling book publishing. In 1559, it published the Index Librorum Prohibitorum ("Index of Prohibited Books"). A few (mainly Dutch) publishers even went to the stake (a habit worth reviving, some current authors would say...). European rulers issued proclamations against "naughty printed books" (of heresy and sedition). The printing of books was subject to licencing by the Privy Council in England. The very concept of copyright arose out of the forced registration of books in the register of the English Stationer's Company (a royal instrument of influence and intrigue). Such obligatory registration granted the publisher the right to exclusively copy the registered book (often, a class of books) for a number of years - but politically restricted printable content, often by force. Freedom of the press and free speech are still distant dreams in many corners of the earth. The Digital Millennium Copyright Act (DMCA), the V-chip and other privacy invading, dissemination inhibiting, and censorship imposing measures perpetuate a veteran if not so venerable tradition.

VII. The More it Changes

The more it changes, the more it stays the same. If the history of the book teaches us anything it is that there are no limits to the ingenuity with which publishers, authors, and booksellers, re-invent old practices. Technological and marketing innovations are invariably perceived as threats - only to be adopted later as articles of faith. Publishing faces the same issues and challenges it faced five hundred years ago and responds to them in much the same way. Yet, every generation believes its experiences to be unique and unprecedented. It is this denial of the past that casts a shadow over the future. Books have been with us since the dawn of civilization, millennia ago. In many ways, books constitute our civilization. Their traits are its traits: resilience, adaptation, flexibility, self re-invention, wealth, communication. We would do well to accept that our most familiar artifacts - books - will never cease to amaze us.

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The Affair of the Vanishing Content

<http://www.archive.org/>

"Digitized information, especially on the Internet, has such rapid turnover these days that total loss is the norm. Civilization is developing severe amnesia as a result; indeed it may have become too amnesiac already to notice the problem properly."

(Stewart Brand, President, [The Long Now Foundation](#))

Thousands of articles and essays posted by hundreds of authors were lost forever when themestream.com surprisingly shut its virtual gates. A sizable portion of the 1960 census, recorded on UNIVAC II-A tapes, is now inaccessible. Web hosts crash daily, erasing in the process valuable content. Access to web sites is often suspended - or blocked altogether - because of a real (or imagined) violation by the webmaster of the host's Terms of Service (TOS). Millions of other web sites - the results of collective, multi-annual, transcontinental efforts - contain unique stores of information in the form of databases, articles, discussion threads, and links to other web sites. Consider "[Central Europe Review](#)". Its archives comprise more than 2500 articles and essays about every conceivable aspect of Central and Eastern Europe and the Balkan. It is one of countless such collections.

Similar and much larger treasures have perished since the dawn of the digital age in the 1920's. Very few early radio and TV programs have survived, for instance. The current "digital dark age" can be compared only to the one which followed the torching of the Library of Alexandria. The more accessible and abundant the information available to us - the more devalued and common it becomes and the less institutional and cultural memory we seem to possess. In the battle between paper and screen, the former has won formidably. Newspaper archives, dating back to the 1700's are now being digitized - testifying to the endurance, resilience, and longevity of paper.

Enter the "Internet Libraries", or Digital Archival Repositories (DAR). These are libraries that provide free access to digital materials replicated across multiple servers ("safety in redundancy"). They contain Web pages, television programming, films, e-books, archives of discussion lists, etc. Such materials can help linguists trace the development of language, journalists conduct research, scholars compare notes, students learn, and teachers teach. The Internet's evolution mirrors closely the social and cultural history of North America at the end of the 20th century. If not preserved, our understanding of who we are and where we are going will be severely hampered. The clues to our future lie ensconced in our past. It is the only guarantee against repeating the mistakes of our predecessors. Long gone Web pages cached by the likes of Google and Alexa constitute the first tier of such archival undertaking.

The Stanford Archival Vault (SAV) in Stanford University assigns a numerical handle to every digital "object" (record) in a repository.

The handle is the clever numerical result of a mathematical formula whose input is the number of information bits in the original object being deposited. This allows to track and uniquely identify records across multiple repositories. It also prevents tampering. SAV also offers application layers. These allow programmers to develop digital archive software and permit users to change the "view" (the interface) of an archive and thus to mine data. Its "reliability layer" verifies the completeness and accuracy of digital repositories.

The Internet Archive, a leading digital depository, in its own words:

"...is working to prevent the Internet — a new medium with major historical significance — and other "born-digital" materials from disappearing into the past. Collaborating with institutions including the [Library of Congress](#) and the [Smithsonian](#), we are working to permanently preserve a record of public material."

Data storage is the first phase. It is not as simple as it sounds. The proliferation of formats of digital content has made it necessary to develop a standard for archiving Internet objects. The size of the digitized collections must pose a serious challenge as far as timely retrieval is concerned. Interoperability issues (numerous formats and readers) probably requires software and hardware plug-ins to render a smooth and transparent user interface.

Moreover, as time passes, digital data, stored on magnetic media, tend to deteriorate. It must be copied to newer media every 10 years or so ("migration"). Advances in hardware and software applications render many of the digital records indecipherable (try reading your word processing files from 1981, stored on 5.25" floppies!). Special emulators of older hardware and software must be used to decode ancient data files. And, to ameliorate the impact of inevitable natural disasters, accidents, bankruptcies of publishers, and politically motivated destruction of data - multiple copies and redundant systems and archives must be maintained. As time passes, data formatting "dictionaries" will be needed. Data preservation is hardly useful if the data cannot be searched, retrieved, extracted, and researched. And, as "The Economist" put it ("The Economist Technology Quarterly, September 22nd, 2001), without a "Rosetta Stone" of data formats, future deciphering of stored the data might prove to be an insurmountable obstacle.

Last, but by no means least, Internet libraries are Internet based. They themselves are as ephemeral as the historical record they aim to preserve. This tenuous cyber existence goes a long way towards explaining why our paperless offices consume much more paper than ever before.

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Revolt of the Poor - The Demise of Intellectual Property

In 1997, I published a book of short stories in Israel. The publishing house belongs to Israel's leading (and exceedingly wealthy) newspaper. I signed a contract which stated that I am entitled to receive 8% of the income from the sales of the book after commissions payable to distributors, shops, etc. A few months later, I won the coveted Prize of the Ministry of Education (for short prose). The prize money (a few thousand euros) was snatched by the publishing house on the legal grounds that all the money generated by the book belongs to them because they own the copyright.

In the mythology generated by capitalism to pacify the masses, the myth of intellectual property stands out. It goes like this: if the rights to intellectual property were not defined and enforced, commercial entrepreneurs would not have taken on the risks associated with publishing books, recording records, and preparing multimedia products. As a result, creative people will have suffered because they will have found no way to make their works accessible to the public. Ultimately, it is the public which pays the price of piracy, goes the refrain.

But this is factually untrue. In the USA there is a very limited group of authors who actually live by their pen. Only select musicians eke out a living from their noisy vocation (most of them rock stars who own their labels - George Michael had to fight Sony to do just that) and very few actors come close to deriving subsistence level income from their profession. All these can no longer be thought of as mostly creative people. Forced to defend their intellectual property rights and the interests of Big Money, Madonna, Michael Jackson, Schwarzenegger and Grisham are businessmen at least as much as they are artists.

Economically and rationally, we should expect that the costlier a work of art is to produce and the narrower its market - the more emphasized its intellectual property rights.

Consider a publishing house.

A book which costs 20,000 euros to produce with a potential audience of 1000 purchasers (certain academic texts are like this) - would have to be priced at a minimum of 50 euros to recoup only the direct costs. If illegally copied (thereby shrinking the potential market as some people will prefer to buy the cheaper illegal copies) - its price would have to go up prohibitively to recoup costs, thus driving out potential buyers. The story is different if a book costs 5,000 euros to produce and is priced at 10 euros a copy with a potential readership of 1,000,000 readers. Piracy (illegal copying) should in this case be more readily tolerated as a marginal phenomenon.

This is the theory. But the facts are tellingly different. The less the cost of production (brought down by digital technologies) - the fiercer the battle against piracy. The bigger the market - the more pressure is applied to clamp down on samizdat entrepreneurs.

Governments, from China to Macedonia, are introducing intellectual property laws (under pressure from rich world countries) and enforcing them belatedly. But where one factory is closed on shore (as has been the case in mainland China) - two sprout off shore (as is the case in Hong Kong and in Bulgaria).

But this defies logic: the market today is global, the costs of production are lower (with the exception of the music and film industries), the marketing channels more numerous (half of the income of movie studios emanates from video cassette sales), the speedy recouping of the investment virtually guaranteed. Moreover, piracy thrives in very poor markets in which the population would anyhow not have paid the legal price. The illegal product is inferior to the legal copy (it comes with no literature, warranties or support). So why should the big manufacturers, publishing houses, record companies, software companies and fashion houses worry?

The answer lurks in history. Intellectual property is a relatively new notion. In the near past, no one considered knowledge or the fruits of creativity (art, design) as "patentable", or as someone's "property". The artist was but a mere channel through which divine grace flowed. Texts, discoveries, inventions, works of art and music, designs - all belonged to the community and could be replicated freely. True, the chosen ones, the conduits, were honoured but were rarely financially rewarded. They were commissioned to produce their works of art and were salaried, in most cases. Only with the advent of the Industrial Revolution were the embryonic precursors of intellectual property introduced but they were still limited to industrial designs and processes, mainly as embedded in machinery. The patent was born. The more massive the market, the more sophisticated the sales and marketing techniques, the bigger the financial stakes - the larger loomed the issue of intellectual property. It spread from machinery to designs, processes, books, newspapers, any printed matter, works of art and music, films (which, at their beginning were not considered art), software, software embedded in hardware, processes, business methods, and even unto genetic material.

Intellectual property rights - despite their noble title - are less about the intellect and more about property. This is Big Money: the markets in intellectual property outweigh the total industrial production in the world. The aim is to secure a monopoly on a specific work. This is an especially grave matter in academic publishing where small-circulation magazines do not allow their content to be quoted or published even for non-commercial purposes. The monopolists of knowledge and intellectual products cannot allow competition anywhere in the world - because theirs is a world market. A pirate in Skopje is in direct competition with Bill Gates. When he sells a pirated Microsoft product - he is depriving Microsoft not only of its income, but of a client (=future income), of its monopolistic status (cheap copies can be smuggled into other markets), and of its competition-detering image (a major monopoly preserving asset). This is a threat which Microsoft cannot tolerate. Hence its efforts to eradicate piracy - successful in China and an utter failure in legally-relaxed Russia.

But what Microsoft fails to understand is that the problem lies with its pricing policy - not with the pirates. When faced with a global marketplace, a company can adopt one of two policies: either to adjust the price of its products to a world average of purchasing power - or to use discretionary differential pricing (as pharmaceutical companies were forced to do in Brazil and South Africa). A Macedonian with an average monthly income of 160 USD clearly cannot afford to buy the Encyclopaedia Encarta Deluxe. In America, 50 USD is the income generated in 4 hours of an average job. In Macedonian terms, therefore, the Encarta is 20

times more expensive. Either the price should be lowered in the Macedonian market - or an average world price should be fixed which will reflect an average global purchasing power.

Something must be done about it not only from the economic point of view. Intellectual products are very price sensitive and highly elastic. Lower prices will be more than compensated for by a much higher sales volume. There is no other way to explain the pirate industries: evidently, at the right price a lot of people are willing to buy these products. High prices are an implicit trade-off favouring small, elite, select, rich world clientele. This raises a moral issue: are the children of Macedonia less worthy of education and access to the latest in human knowledge and creation?

Two developments threaten the future of intellectual property rights. One is the Internet. Academics, fed up with the monopolistic practices of professional publications - already publish on the web in big numbers. I published a few book on the Internet and they can be freely downloaded by anyone who has a computer or a modem. The full text of electronic magazines, trade journals, billboards, professional publications, and thousands of books is available online. Hackers even made sites available from which it is possible to download whole software and multimedia products. It is very easy and cheap to publish on the Internet, the barriers to entry are virtually nil. Web pages are hosted free of charge, and authoring and publishing software tools are incorporated in most word processors and browser applications. As the Internet acquires more impressive sound and video capabilities it will proceed to threaten the monopoly of the record companies, the movie studios and so on.

The second development is also technological. The oft-vindicated Moore's law predicts the doubling of computer memory capacity every 18 months. But memory is only one aspect of computing power. Another is the rapid simultaneous advance on all technological fronts. Miniaturization and concurrent empowerment by software tools have made it possible for individuals to emulate much larger scale organizations successfully. A single person, sitting at home with 5000 USD worth of equipment can fully compete with the best products of the best printing houses anywhere. CD-ROMs can be written on, stamped and copied in house. A complete music studio with the latest in digital technology has been condensed to the dimensions of a single chip. This will lead to personal publishing, personal music recording, and the to the digitization of plastic art. But this is only one side of the story.

The relative advantage of the intellectual property corporation does not consist exclusively in its technological prowess. Rather it lies in its vast pool of capital, its marketing clout, market positioning, sales organization, and distribution network.

Nowadays, anyone can print a visually impressive book, using the above-mentioned cheap equipment. But in an age of information glut, it is the marketing, the media campaign, the distribution, and the sales that determine the economic outcome.

This advantage, however, is also being eroded.

First, there is a psychological shift, a reaction to the commercialization of intellect and spirit. Creative people are repelled by what they regard as an oligarchic establishment of institutionalized, lowest common denominator art and they are fighting back.

Secondly, the Internet is a huge (200 million people), truly cosmopolitan market, with its own marketing channels freely available to all. Even by default, with a minimum investment, the likelihood of being seen by surprisingly large numbers of consumers is high.

I published [one book](#) the traditional way - and [another on the Internet](#). In 50 months, I have received 6500 written responses regarding [my electronic book](#). Well over 500,000 people read it (my Link Exchange meter registered c. 2,000,000 impressions since November 1998). It is a [textbook \(in psychopathology\)](#) - and 500,000 readers is a lot for this kind of publication. I am so satisfied that I am not sure that I will ever consider a traditional publisher again. Indeed, [my last book](#) was published in the very same way.

The demise of intellectual property has lately become abundantly clear. The old intellectual property industries are fighting tooth and nail to preserve their monopolies (patents, trademarks, copyright) and their cost advantages in manufacturing and marketing.

But they are faced with three inexorable processes which are likely to render their efforts vain:

The Newspaper Packaging

Print newspapers offer package deals of cheap content subsidized by advertising. In other words, the advertisers pay for content formation and generation and the reader has no choice but be exposed to commercial messages as he or she studies the content.

This model - adopted earlier by radio and television - rules the internet now and will rule the wireless internet in the future. Content will be made available free of all pecuniary charges. The consumer will pay by providing his personal data (demographic data, consumption patterns and preferences and so on) and by being exposed to advertising. Subscription based models are bound to fail.

Thus, content creators will benefit only by sharing in the advertising cake. They will find it increasingly difficult to implement the old models of royalties paid for access or of ownership of intellectual property.

Disintermediation

A lot of ink has been spilt regarding this important trend. The removal of layers of brokering and intermediation - mainly on the manufacturing and marketing levels - is a historic development (though the continuation of a long term trend).

Consider music for instance. Streaming audio on the internet or downloadable MP3 files will render the CD obsolete. The internet also provides a venue for the marketing of niche products and reduces the barriers to entry previously imposed by the need to engage in costly marketing ("branding") campaigns and manufacturing activities.

This trend is also likely to restore the balance between artist and the commercial exploiters of his product. The very definition of "artist" will expand to include all creative people. One will seek to distinguish oneself, to "brand" oneself and to auction off one's services, ideas, products, designs, experience, etc. This is a return to pre-industrial times when artisans ruled

the economic scene. Work stability will vanish and work mobility will increase in a landscape of shifting allegiances, head hunting, remote collaboration and similar labour market trends.

Market Fragmentation

In a fragmented market with a myriad of mutually exclusive market niches, consumer preferences and marketing and sales channels - economies of scale in manufacturing and distribution are meaningless. Narrowcasting replaces broadcasting, mass customization replaces mass production, a network of shifting affiliations replaces the rigid owned-branch system. The decentralized, intrapreneurship-based corporation is a late response to these trends. The mega-corporation of the future is more likely to act as a collective of start-ups than as a homogeneous, uniform (and, to conspiracy theorists, sinister) juggernaut it once was.

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The Territorial Web

The Net was supposed to dissolve anachronistic national borders and cultural boundaries. It was expected to vitiolate distance - both physical and mental. It was hailed as the invention that will unify Mankind and harmonize (though not homogenize) civilizations, east and west.

Yet, this was not to be. As dot.coms bombed, their more veteran and more experienced brick and mortar rivals took over the Net, transforming it in the process into a giant content delivery, marketing, supply chain management, and customer relationship management platform. This evolution all but demolished the non-local nature of the early Internet. It has also brought it into the remit of existing national laws.

Moreover, governments throughout the world have become more assertive in exercising territorial jurisdiction over the hitherto ostensibly extraterritorial Net. A French court has prohibited Yahoo! from making certain content on its Web sites available to French citizens. An American court advised Yahoo! to ignore this decision. A Russian programmer was arrested by the FBI for offering a decryption software for sale in Russia (where it is perfectly legal). Governments from China to Saudi Arabia filter Web content regularly. Following the September 11 attacks, restrictive anti-terrorist legislation the world over targeted cyberspace.

But the real territorialization of the Internet - the redrawing of its internal contours and the withdrawal of its libertarian foundations - is more pernicious, all-pervasive, quotidian, and surreptitiously gradual. This is not the outcome of legal revolutions and court-driven evolution. It is piecemeal, quiet, unnoticed, often inadvertent and unintended. It is an "afterthought" rather than a premeditated "plot". It happens e-tailer by e-tailer, one Web site after the other, like the spread of a virus.

Consider these two - by no means exhaustive - examples.

Amazon and Geocities (now, Yahoo!Geocities) are two Internet establishments, two gigantic communities of users that, between them, represent a sizable chunk of all the activity on the Internet.

It has long been impossible for a non-US publisher to sell its wares (books, for instance) through Amazon or to Amazon directly. Amazon works exclusively with US publishers and distributors. To collaborate with Amazon - one of the members of a duopoly as far as B2C e-commerce goes - a non-US publisher (no matter how substantial) has to work with a US distributor and thus forgo a large portion of its revenues (payable to the distributor as commissions). Moreover, said publisher cannot even open a ZShop (Amazon's version of mom and pop store). One has to be a US resident to do so. Amazon is closed to the outside world, despite its (false) global image. It sells all over the world - but it only buys American.

This discriminatory behaviour is partly profit-motivated. It is logistically easier and cheaper to deal only with US businesses. But Barnes and Noble works directly with foreign publishers and they preceded Amazon in the book business by decades.

Yahoo!Geocities has lately instituted a new policy. It limits the size of downloads from the free home pages of members of its community. If the downloaded content from a given home page exceeds 3 Gb (extrapolated based on hourly usage) - the "offending" member's page is shut down for an hour. The member is then prompted to pay a monthly subscription fee for a Premium Service in order avoid a recurrence of this unfortunate event. This "marketing drive" is intended to compensate Yahoo!Geocities for a precipitous drop in online advertising revenues.

The "Premium" package includes "Premium Mail". But only US citizens or residents can subscribe to it. And, you guessed it right, without the Premium Mail component, one cannot complete the subscription process. Though not stated explicitly anywhere, the Premium services are closed to the outside world and are the exclusive reserve of Americans. One can get around this virtual ethnic cleansing by providing false data while registering, but this is besides the point.

The Internet is a reflection of the outside world. As economies contract, unemployment soars, personal safety vanishes, the social fabric disintegrates, and consumption slumps - countries tend to isolate themselves politically, react aggressively, and protect their national economies. Protectionism, unilateralism, and isolationism are scourges the Internet was supposed to be immune to. Little did we know.

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The In-Credible Web

<http://www.webcredibility.org/>

People are conditioned to trust written words, not to mention images. "I read it in the paper" or "As seen on TV" are worn out but still effective clichés. The Internet combines both the written and the seen. It is both a textual and a visual (and audio) medium. Do people trust Internet content? Is the incredible Internet - credible?

In the "brick and mortar" world, credibility is associated with brands. A brand, in effect, guarantees the quality and specifications of a product (think McDonald's hamburgers), its performance (think Palm), level of service and commitment to customer care (Amazon), variety, or price (Wal-Mart). Brands are sustained and enhanced by advertising campaigns. The content or sales pitch of specific ads are often less important than the message conveyed by the very existence of a campaign: "This company is rich enough (read: stable, reliable, trustworthy, here to stay) to spend millions on advertising".

The Internet has very few brands (Yahoo!, Amazon) - and some of them are tarnished. Some "old media" brands have entered the fray (Barnes and Noble, The Wall Street Journal, the Britannica) - hitherto without much success. The overwhelming bulk of Web content is created or disseminated by small time entrepreneurs and monomaniacs.

So, how does one establish or acquire credibility in such a diffuse and anarchic medium?

Enter Stanford University's "Web Credibility Project".

They define themselves thus:

"Our goal is to understand what leads people to believe what they find on the Web. We hope this knowledge will enhance Web site design and promote future research on Web credibility. As part of this ongoing project we are:

- Performing quantitative research on Web credibility.
- Collecting all public information on Web credibility.
- Acting as a clearinghouse for this information.
- Facilitating research and discussion about Web credibility.
- Helping designers create credible Web sites."

- Examples of current projects:

Timeliness: How does having out-of-date content affect the credibility of a Web site?

Interaction: How does having a personalized interaction with a Web site affect its credibility?

Negative Content: How does displaying negative content associated with a branded web site affect the credibility of the brand?

It is useful to confine ourselves to this definition of trust:

"The subjective belief, perception, or conviction that information provided is true, factual, and objective, and that commitments undertaken, explicitly, or implicitly, will be honoured fully and in a timely manner".

Such perception, belief, or conviction are based on:

- Past experience in general (with spam, with merchants, or providers, with a similar product category, with the same type of content, etc.) and personal proclivity to trust or to distrust
- Experience with the specific merchant or provider (whether personal or gleaned from other people's feedback - reviews, complaints, and opinions)

There is little that a merchant can do about the former. The latter is, expectedly, influenced by:

- Professionalism (as evident in Web site design, e-commerce facilities, user-friendliness, navigability, links to other relevant Web pages, links from other Web sites, ease and speed of download, updated content, proofreading, domain name which matches the company's name, availability, multilingualism, etc.)
- Trustworthiness (lack of bias, good intentions, truthfulness, thoroughness, objectivity, expertise and author credentials, knowledgeable sources and treatment, citations and bibliography), and what the authors of the research call "Real World Feel" (physical address, phone/fax numbers, non-Web e-mail address, photos of facilities and staff, audio recording, ownership by a not for profit organization, URL ending with ORG).
- Commercial Web sites are less trusted. Cluttered ads, paid subscriptions, e-commerce enabled forms - all reduce the site's credibility! This is especially true if the entire site is a one, big ad and when it is hard to distinguish ads from content.
- Track record (how veteran is the merchant, past financial performance, credit history, brand name recognition, lists of customers, etc.)
- Selection (how many products are carried, how often is inventory refreshed, etc.)
- Advertising (is the company's business sufficiently lucrative to support a campaign?)
- Service (good service indicates a reassuring readiness to sacrifice the bottom line to cater to the customer's legitimate concerns, feedback forms, live support, etc.)
- Full disclosure of rates, prices, privacy policy, security issues, etc.
- Feedback from other users (opinions, reviews, comments, FAQs, support groups, etc.)
- Site rating and certification by trustworthy agencies (like the Better Business Bureau - BBB, VeriSign, TRUSTe) - or awards won (from credible and reputable organizations). Links from other, well-known and believable Web sites.

The Credibility Web discovered that trust in e-commerce is also influenced by idiosyncratic factors. Certain domain names (org) are more trusted than others (com). Too many ads, broken links, typos, outdated or old content - all diminish trust. In the absence of proven markers and behavioral guidelines, people seem to resort to extrapolation ("if they can't maintain their own Web site ...") and stereotypes (e.g., NGO's are more trustworthy than corporations).

As Web sites proliferate (Google indexes well over 3 billion now) and Web authoring becomes a routine task - the noise to signal ratio of garbage to useful information is bound to deteriorate. Search engines already incorporate crude measures of credibility in their rankings (e.g., the number of links from external Web sites). But, to remain useful, search engines (and Web directories) would do well to rate Web content more comprehensively and thoroughly. They should rank Web sites by authoritativeness, reliability, and objectivity, for instance.

Research shows that 75% of all respondents resort to the Internet as a primary information provider. The inundation of irrelevant material caused most surfers to confine their surfing to 10 Web sites (the equivalent of "anchors" in shopping malls), which they deem reliable, timely, accurate, objective, authoritative, and credible. The rest of the Internet gets the leftovers. This worrying trend can be reversed only through the emergence of independent and commercially-viable rating agencies. Web sites (at least the business ones) should be willing to pay for credible rating to enhance their stickiness and attract monetizable "eyeballs". In the absence of such third party accreditation, the Internet risks both irrelevance and disrepute.

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Does Free Content - Sell?

The answer is: no one knows. Many self-styled "gurus" and "pundits" - authors of voluminous tomes they sell to the gullible - pretend to know. But their "expertise" is an admixture of guesswork, superstitions, anecdotal "evidence" and hearsay. The sad truth is that no methodical, long term, and systematic research has been attempted in the nascent field of e-publishing and, more broadly, digital content on the Web. So, no one knows to say for sure whether free content sells, when, or how.

There are two schools - apparently equally informed by the dearth of hard data. One is the "viral school". Its vocal proponents claim that the dissemination of free content fuels sales by creating "buzz" (word of mouth marketing driven by influential communicators). The "intellectual property" school roughly says that free content cannibalizes paid content mainly because it conditions potential consumers to expect free information. Free content also often serves as a substitute (imperfect but sufficient) to paid content.

Experience - though patchy - confusingly seems to point both ways. Views and prejudices tend to converge around this consensus: whether free content sells or not depends on a few variables. They are:

- (1) **The nature of the information.** People are generally willing to pay for specific or customized information, tailored to their idiosyncratic needs, provided in a timely manner, and by authorities in the field. The more general and "featureless" the information, the more reluctant people are to dip into their pockets (probably because there are many free substitutes).
- (2) **The nature of the audience.** The more targeted the information, the more it caters to the needs of a unique, or specific group, the more often it has to be updated ("maintained"), the less indiscriminately applicable it is, and especially if it deals with money, health, sex, or relationships - the more valuable it is and the more people are willing to pay for it. The less computer savvy users - unable to find free alternatives - are more willing to pay.
- (3) **Time dependent parameters.** The more the content is linked to "hot" topics, "burning" issues, trends, fads, buzzwords, and "developments" - the more likely it is to sell regardless of the availability of free alternatives.
- (4) **The "U" curve.** People pay for content if the free information available to them is either (a) insufficient or (b) overwhelming. People will buy a book if the author's Web site provides only a few tantalizing excerpts. But they are equally likely to buy the book if its entire full text content is available online and overwhelms them. Packaged and indexed information carries a premium over the same information in bulk. Consumer willingness to pay for content seems to decline if the amount of content provided falls between these two extremes. They feel sated and the need to acquire further information vanishes. Additionally, free content must really be free. People resent having to pay for free content, even if the currency is their personal data.

(5) **Frills and bonuses.** There seems to be a weak, albeit positive link between willingness to pay for content and "members only" or "buyers only" frills, free add-ons, bonuses, and free maintenance. Free subscriptions, discount vouchers for additional products, volume discounts, add-on, or "piggyback" products - all seem to encourage sales. Qualitative free content is often perceived by consumers to be a BONUS - hence its enhancing effect on sales.

(6) **Credibility.** The credibility and positive track record of both content creator and vendor are crucial factors. This is where testimonials and reviews come in. But their effect is particularly strong if the potential consumer finds himself in agreement with them. In other words, the motivating effect of a testimonial or a review is amplified when the customer can actually browse the content and form his or her own opinion. Free content encourages a latent dialog between the potential consumer and actual consumers (through their reviews and testimonials).

(7) **Money back warranties or guarantees.** These are really forms of free content. The consumer is safe in the knowledge that he can always return the already consumed content and get his money back. In other words, it is the consumer who decides whether to transform the content from free to paid by not exercising the money back guarantee.

(8) **Relative pricing.** Information available on the Web is assumed to be inherently inferior and consumers expect pricing to reflect this "fact". Free content is perceived to be even more shoddy. The coupling of free ("cheap", "gimcrack") content with paid content serves to enhance the RELATIVE VALUE of the paid content (and the price people are willing to pay for it). It is like pairing a medium height person with a midget - the former would look taller by comparison.

(9) **Price rigidity.** Free content reduces the price elasticity of paid content. Normally, the cheaper the content - the more it sells. But the availability of free content alters this simple function. Paid content cannot be too cheap or it will come to resemble the free alternative ("shoddy", "dubious"). But free content is also a substitute (however partial and imperfect) to paid content. Thus, paid content cannot be priced too high - or people will prefer the free alternative. Free content, in other words, limits both the downside and the upside of the price of paid content.

There are many other factors which determine the interaction of free and paid content. Culture plays an important role as do the law and technology. But as long as the field is not subject to a research agenda the best we can do is observe, collate - and guess.

This article is, of course, free content...:o))

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Copyright Law and Free Online Scholarship

An Interview with Peter Suber

Also published by United Press International (UPI)

The battle between owners of content and its users extends to all corners of the publishing world. Following a brief period of enthusing about "synergies", most media companies, content aggregators, content providers - movie and recording studios, publishers, news organizations - came to view the digitization of content as a threat rather than an opportunity. In an effort to protect their intellectual property rights, publishing and recording corporations have fostered the radicalization of copyright law (mainly in the DMCA - the Digital Millennium Copyright Act). They have also retarded the fair use of copyrighted material and the rights and traditional privileges enjoyed by content users. This was achieved mainly by incorporating "rights management" or "asset management" technologies into readers of digital records (such as e-books). These technologies prevented users from copying the files they purchased, from converting them to audio, from lending them to others (as they would a print book), and from reading them on more than one device.

Consider, for instance, scholarly publishing. It is in the throes of a protracted crisis.

The price of scholarly, peer-reviewed journals has skyrocketed in the last three decades, often way out of the limited means of libraries, universities, individual scientists and scholars. A "scholarly divide" has opened between the haves (the negligible minority of academic institutions with rich endowments and well-heeled corporations) and the haves not (all the others). Paradoxically, due to rising costs, access to authoritative and authenticated knowledge has declined as the number of professional journals has proliferated. This is not to mention the long (and often crucial) delays in publishing research results and the shoddy work of many under-paid and over-worked peer reviewers.

The Internet was suppose to change all that. Originally, a computer network for the exchange of (restricted and open) research results among scientists and academics in participating institutions - it was supposed to provide instant publishing, instant access, and instant gratification. It has delivered only partially. Preprints of academic papers are often placed online by their eager authors and subjected to peer scrutiny. But this haphazard publishing cottage industry did nothing to dethrone the print incumbents and their avaricious pricing.

Peter Suber has both a Ph.D. in philosophy and a J.D. He is a professor of philosophy at Earlham College, where he also teaches law and computer science. This qualifies him uniquely to tackle the issue of free online scholarship, which cannot be divorced from the legal intricacies of copyright law. In the last 11 months, he has been writing and publishing the weekly the Free Online Scholarship (FOS) Newsletter.

Apart from writing the FOS Newsletter, Suber is working to realize FOS on several fronts. He is a consultant to the Open Society Institute on FOS issues. He is the general editor of the Web's foremost philosophy search engine Hippias and co-editor of Noesis, both available online free of charge. He serves on the Committee on Philosophy and Computers of the American Philosophical Association. He is on the board of governors of the International Consortium for the Advancement of Academic Publishing. With Tony Beavers, He is working on software to collect, index, and search the literature at distributed online journal sites and text archives.

Q: In "Revolt of the Poor", I wrote: "If the rights to intellectual property were not defined and enforced, commercial entrepreneurs would not have taken on the risks associated with publishing books, recording records, and preparing multimedia products. As a result, creative people will have suffered because they will have found no way to make their works accessible to the public. Ultimately, it is the public which pays the price of piracy." Is there any proven connection between the enforcement (or even the existence) of intellectual property rights - and the preponderance of creativity and/or of media entrepreneurship (publishing, etc.)?

A: I don't have the relevant expertise to answer for music, software, general literature, or even scholarly books. But for scholarly journal articles (the main focus of the FOS movement), there seems to be very little or no connection between copyright and the productivity and creativity of authors. I say this for two reasons. First, scholarly authors tend to transfer copyright in their articles to the journals that publish them. (Most scholars don't realize that they could probably negotiate a different arrangement, but that's another issue.) For most journal articles, then, copyright protects publishers, not authors. But this hasn't stopped scholars from writing journal articles. Second, authors of scholarly journal articles are not paid for them, whether they transfer copyright or not. Authors consent to this practice and willingly submit their articles to journals that don't pay for submissions. Scholarly authors are paid by their institutions, not by readers, which frees them from the market in deciding what to write. They are rewarded by making a contribution to knowledge and advancing their own careers, not by cash. Hence, the "unauthorized copying" prohibited by copyright law doesn't deprive these authors of money, but only readers. Copyright law (at least when used in the traditional way to restrict access to paying customers) gets in the way. Widespread copying with or without permission would give authors of journal articles more readers and more impact, without depriving them of any revenue. But copyright law generally prohibits this kind of copying. Even though this limit on free distribution is contrary to their interests, it clearly hasn't deterred authors from writing more articles.

Having said that, let me add that the FOS movement doesn't need to abolish or even reform copyright law. If authors of scholarly journal articles retain the copyright to their articles (transferring only, say, the right of first print publication, and perhaps some other rights), then authors can consent to widespread copying and finally let copyright advance their interests rather than those of publishers. In particular, authors could consent to put their writings on the internet without any financial, legal, or technical barriers to access. This is what the FOS movement is trying to achieve, and it can all happen within the boundaries of existing copyright law.

Q: Could you describe the crisis in scholarly publishing?

A: The main problem is that the prices of journals (both print and online journals) have risen faster than inflation and faster than library budgets for three decades. Libraries cope by canceling subscriptions, or by taking from their book budgets to enlarge their serials (journal) budgets, or both. One result is that even researchers at the wealthiest institutions do not have access to all the journals they need for their research. Or, from the other end of the author-reader relationship, authors of journal articles cannot reach all the readers who would benefit from the results of their research. When research is slowed and obstructed in this way, so are all the benefits of research, such as new medicines.

Another way to put the underlying economic problem is that the huge savings that can be achieved by publishing to the internet haven't yet done anything to bring down the costs of scholarly journals. One reason is that most journals still have print editions whose costs are unaffected by the internet revolution. Another reason is that the online editions of most journals use expensive software to permit access to paying subscribers and block access to everyone else. The internet is only a revolutionary medium of nearly costless dissemination for those who don't manage subscription lists and don't try to distinguish between authorized and unauthorized readers.

There are other dimensions to the scholarly publishing crisis. One is that journal publishers (like software publishers) are moving beyond copyright law to licensing contracts give them even more protection. Publishers don't let libraries "buy" or "own" copies of electronic journals, but only "license" them. As a result, libraries aren't assured that they have long-term access rights to these journals, they have diminished rights to lend their copies, and their patrons have diminished fair-use rights. They are getting much less and paying much more.

If there were no alternative, that would be one thing. But there is an alternative to the near monopoly concentration in the scholarly publishing industry. There is an alternative to harsh licensing contracts. And above all, the internet gives us an alternative method of dissemination that widens distribution and lowers cost at the same time. Even if there were no crisis, the opportunity afforded by the internet would be too beautiful to ignore. Given the crisis, it's inexcusable.

Q: What is Free Online Scholarship and how can it be reconciled with rights to intellectual property? Can the current revenue models of publishers be replaced with viable alternative revenue models - and, if yes, which are they? What the risks of abuse of FOS? Is FOS an instance of a larger "free content" movement (Napster, etc.)? If so, can Free Online Content principles be applied to music, books, and film. for instance?

A: Free online scholarship is scientific and scholarly literature which is made available free of charge on the internet. The FOS movement singles out this body of literature not because it is useful (because other kinds of literature are useful too), but because it has the relevant peculiarity that its authors don't expect to be paid. If authors want to make money from their works, we don't criticize or pressure them. But when authors consent to do without royalties, then there's no reason not to make their writings freely available on the internet. When the literature is as useful as research articles are, then free online access is a public good worth every effort to realize.

Once we understand that the scope of the FOS movement is limited to works that authors consent to give away, or to publish without payment, then we can understand why this movement is completely compatible with intellectual property rights. When authors write articles, they are the copyright holders. A growing number of journals will use their peer review process to vet and validate articles, and ultimately publish them, without demanding that authors give up copyright --and we hope to launch more journals with this enlightened policy. If the authors of peer-reviewed articles holds the copyright to them, then they have the right to decide whether to make access free or restricted. If they choose to make it free and open, that is their right, not an infringement of their right. The FOS movement is about using copyright to authorize free and open access, not about piracy that creates free access without the consent of the copyright holder.

This movement has nothing interesting in common with the movement created by Napster. The all-important difference is that researchers give away their journal articles and musicians don't give away their music. We work entirely within the consent of the copyright holder.

Q: The major missing element seems to be perceived respectability. But there are others. No agreed upon content or knowledge classification method has emerged. Some web sites (such as Suite101) use the Dewey decimal system. Others invented and implemented systems of their making. Additionally, one click publishing technology (such as Webseed's or Blogger's) came to be identified strictly with non-scholarly material: personal reminiscences, correspondence, articles, and news. Above all, no feasible alternative revenue models seem to have emerged.

A: Regarding respectability: There is a growing number of free online *peer-reviewed* journals, and growing number of highly respected academics willing to serve on their editorial boards. As measured by impact (citations) or informal prestige, some online journals surpass many print journals. It's true that print journals still have greater impact and prestige than online journals, but only if we average the two classes. The factors that create respectability are medium-independent, and can easily belong to online journals. A growing number of online journals are as respectable as any print journal. BMJ (formerly called the British Medical Journal) is eminently respectable. It offers 100% of its print copy online free of charge. There are other examples in every field.

My view is that the lack of an agreed upon classification method is not a problem. That's a long conversation. But it's not true that the need for such a classification method is widely felt. Indexing and organization are desirable, but there is free and priced software to index and organize any online content in any way that users want. This software will only get better as time goes on.

It's not true that no feasible alternative revenue models have emerged. FOS doesn't depend on volunteer labor. The general revenue model is to pay for outgoing articles (dissemination) rather than incoming articles (access). There are many variations on the theme, depending on who pays. But it's perfectly feasible to regard the costs of dissemination as part of the cost of research, to be paid by the grant that funds the research --for example. (This is just one variation on the theme.) BioMed Central is a *for-profit* provider of FOS implementing one variation on this theme.

In a general introduction to the FOS movement I'm writing for another journal, I'm putting it this way. The economic feasibility of FOS is no more mysterious than the economic feasibility of Public TV. Donors pay the costs of dissemination so that it will be free for everyone. For that matter, it's no more mysterious than the economics of commercial TV, which is identical except that advertisers are among the donors. There are many successful and sustainable examples in our economy in which some people pay to make a good free for everyone rather than pay only for their own private access or consumption.

Q. Can you summarize for us the major developments and trends in FOS?

A: Here are some trends in the FOS movement:

A growing number of disciplines have free online preprint archives. Every discipline now has a growing number of free online peer-reviewed journals. A growing number of universities have free online archives for faculty research papers. Journal publishers are experimenting with ways to offer more of their content online, some of it free of charge. They are also experimenting with different ways to fund the costs of the online content. More journal publishers are allowing authors to put their published papers online free of charge e.g. on their own home pages. It is increasingly common to see journal editors rebel against journal publishers that refuse to lower subscription prices or widen online access. They rebel by resigning and launching new journals on the same topics and usually gather the same subscribers and a superior "impact factor" very quickly. More scholars and researchers are demanding that journals offer free online access to their contents. The Public Library of Science open letter has so far gathered more than 29,000 signatures from 175 countries. More online repositories of digital articles are participating in the Open Archives Initiative, and more scholars and task forces are endorsing it. It is the emerging standard for making separate archives "interoperable" --for example, searchable as if they were one. More serious, feasible solutions are emerging to the problem of long-term preservation of digital content. More journals and special initiatives are seeking ways to provide developing countries with free online access to scientific and scholarly literature. More software tools exist to automate the operation of online journals (hence, to keep costs low). Just about all tasks can now be automated except editorial judgment (which shouldn't be, of course). More hiring and tenure committees are giving weight to peer-reviewed publications without regard to the medium of publication (print or electronic). More journal publishers are seeking ways to accommodate the scholarly demand for online access (though not always to accommodate the demand for free online access). The serials pricing crisis which has long alarmed and mobilized librarians is starting to alarm and mobilize university administrators and faculty. Copyright law is changing from a balance between publishers and readers toward a severe imbalance favoring publishers. (See next question below.)

The recent Budapest Open Access Initiative (BOAI) is promising for several reasons. It brings together FOS proponents from many disciplines and nations, FOS initiatives from many fronts, and foundations with serious resources to help advance the cause. These foundations are led by George Soros' Open Society Institute, which convened the meeting that gave birth to the BOAI.

One thing I like about the BOAI is its friendliness. It doesn't demand that journals or publishers join the cause or face sanctions. It offers to help them make the transition if they are willing to do so. But if they aren't willing, it simply says it will pursue the cause without their help. The BOAI doesn't demand any changes from publishers, markets, or legislation, and doesn't criticize anyone for not joining. It articulates two strategies that scholars can pursue on their own. One is self-archiving, by which scholars deposit their papers in institutional or disciplinary archives. (These archives are interoperable, or they cooperate with one another, by virtue of their compliance with the standards of the Open Archives Initiative.) The second is the launch of a new generation of journals that are committed to making their contents freely accessible online.

The long-term economic sustainability of free online scholarship is not a problem. We know this because creating open online access to this literature costs much less than traditional forms of dissemination and much less than the money currently spent on journal subscriptions. The only problem is the transition from here to there. The BOAI is especially promising because it understands this and mobilizes the financial resources to help make the transition possible for existing journals that would like to change their business model, new journals that need to establish themselves, and universities that don't yet participate in self-archiving. In this sense the BOAI is not just a statement of principles or ideals, but a serious and effective plan to achieve this very important public good.

Q. Copyright laws are being revamped the world over (but mainly in the USA). What would be the impact of the likes of the DMCA on scholarship and on the economics of publishing?

A. The DMCA has several harmful consequences for scholarship. First, it prevents some scientists who happen to specialize in encryption and data security from publishing their research. Edward Felten of Princeton has so far been unable to get a court to declare that he has a First Amendment right to publish his research on certain methods of copy protection. Taken at face value, the DMCA would punish Felten for publishing his research. Until courts settle the question whether the relevant sections of the DMCA are constitutional, the free expression rights of scholars like Felten will be chilled. And of course if the question is resolved in favor of the DMCA, then the free expression rights of scholars like Felten will be repealed. Second, it prevents some computer scientists from publishing their research in the form of source code, the technical language of their field. While some courts have held that source code is protected as a kind of speech, other courts are giving it a low level of protection in order to give effect to DMCA prohibitions on certain kinds of software. Third, it supports strong copy-protection schemes that deprive readers of their fair-use rights. For the same reason, it deprives purchasers of digital content of the right to bypass copy protection in order to make personal back-up copies or to keep the content readable when they move to a new computer. For the same reason, it prevents libraries from taking necessary measures to assure the long-term access and preservation of digital literature. The DMCA is even worse for software developers and consumers than it is for scholars. This week Felten dropped his appeal. So currently no court is even considering his question whether scholars have a First Amendment right to publish their research, or whether the anti-circumvention clause of the DMCA (which seems to prohibit Felten from publishing) is unconstitutional.

Note that the FOS movement has no problem with the strong protection of intellectual property, which is at the heart of the DMCA. That's not the problem. The problem is the way the DMCA upsets a long-standing (and constitutionally mandated) balance between publishers and readers and gives nearly everything to publishers.

Because internet content crosses national boundaries, one nation will often want to enforce the copyright judgments of its own courts, interpreting its own laws, in another country. Worldwide developments in parallel to the DMCA, like the still evolving Hague Convention on Jurisdiction and Foreign Judgments, are giving effect to these desires. The problem is that these efforts, like the DMCA, put intellectual property rights above free speech rights. The same rules that let a nation enforce a copyright judgment beyond its own boundaries also let it enforce a censorship judgment beyond its own boundaries. Until recently, the border-crossing potential of the internet was a feature; now it's a bug. Until recently, it subjected less-free nations to the free speech of the most-free nations. New developments threaten to subject the most-free nations to the censorship rules of the least-free nations. In the name of copyright enforcement, worldwide speech rights are sinking to the lowest standard in use anywhere.

Another development in copyright law that harms scholarship is the extension of copyright terms, even retroactively. The Sonny Bono Copyright Extension Act (1998) retroactively added 20 years to existing copyrights. This harms scholarship by greatly delaying the transition of copyrighted works into the public domain. By shrinking the public domain, it shrinks the number of modern classics that volunteers can lawfully digitize and make freely available on the internet. For the same reason, it tilts the balance of copyright law even further in the direction of publishers and against the interests of readers and researchers. Those who have looked into it believe that the Bono Act was motivated to protect the Disney copyright on Mickey Mouse, which would have expired in 2003. If so, this is a grotesque inversion of values. The Uruguay Round Agreements Act (1994) is even worse, and can remove works from the public domain and retroactively grant them copyrights.

In short, whatever harms the rights and interests of readers harms scholarship and research, and recent trends in copyright law increasingly favor the rights and interests of publishers over those of readers. Copyright law is increasingly hostile to fair-use rights, the first sale doctrine, limited terms, and the public domain.

Q. To summarize: is the Internet a boon or a bane as far as publishing and scholarly exchange are concerned? It would seem that its existence brought about the RETARDATION of users' rights - rather than the user empowerment everyone was hoping for.

A. The Internet is an unprecedented boon to scholarly publishing. The only problem is that we have barely begun to realize its full potential, including its potential to make scholarly literature freely available to everyone with an internet connection. We may never take full advantage of the ways it can transform scholarly research and publication. That requires an endless approximation process, deep imagination, and time. But if we could just take advantage of the opportunity it affords for free online research literature, then the internet will have a greater beneficial impact on research and education than lending libraries or the Gutenberg press.

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The Second Gutenberg

Interview with Michael Hart

Also published by United Press International (UPI)

"Michael Hart, founder of Project Gutenberg is a visionary who was quite ahead of his time. In fact, it may still be several years before his dream of universally-available literature comes true. Nevertheless, Michael's efforts have inspired thousands of people around the world who now share his vision.

The progress of Project Gutenberg has been slower than many hoped, but it has definitely helped to push forward the great eBook dream which I share. Unfortunately, the technology, infrastructure, and market are lagging way behind Michael's vision, a common hazard of being a pioneer." - says Glenn Sanders, Director of eBookWeb.org.

Michael S. Hart is a Professor of Electronic Text at Benedictine University (Illinois, U.S.A.) and a former Visiting Scientist at Carnegie Mellon University was a Fellow of the Internet Archive for the year 2000. He founded Project Gutenberg in 1971 and is currently its Executive Coordinator.

In more ways than one, he is the father of e-publishing and e-books. He pioneered not only the dissemination of electronic texts - but also some of the working models that underpinned the Internet until the dot.com crash two years ago.

The ethos of the early Internet owes a lot to Hart. He created a mass movement of volunteers, remote-collaborating on a project of free access to content. There is no better encapsulation of the gist of the Net. And PG books can be replicated at no cost - a precursor of viral and buzz marketing.

Project Gutenberg is, by now, an integral part of the myth and history of our networked world. It is a worldwide library created and maintained by a small army of dedicated volunteers who scan, proofread, and upload dozens of new e-texts every week. Most of these texts are in the public domain.

But a few are copyrighted - with permission to store the work granted by authors and publishers or other copyright holders. There are many imitators and copycats - but only one Project Gutenberg, in scope, perseverance, dedication, and thoroughness.

As copyright expires, thousands of works are added monthly to the public domain and can be freely replicated and distributed. Most of these books are out of print and saved by the Project from obscurity and ultimate oblivion.

The recurrent extension of copyright terms by Congress hampers this work by restricting the growth of the public domain or even by removing texts from it. It benefits very few copyright holders at the expense of universal access to literature and knowledge.

Hart mourns the rapidly dwindling public domain:

"In the USA, no copyrights will expire from now to 2019!!! It is even much worse in many other countries, where they actually removed 20 years from the public domain. Books that had been legal to publish all of a sudden were not. Friends told me that in Italy, for example, all the great Italian operas that had entered the public domain are no longer there. . .

Same goes for the United Kingdom. Germany increased their copyright term to more than 70 years back in the 1960's. It is a domino effect. Australia is the only country I know of that has officially stated they will not extend the copyright term by 20 years to more than 70."

Hart is a visionary and a pioneer. Such vocations carry a heavy price tag in recurrent frustration and cumulative exhaustion. Hart may be tired, but he does not sound bitter. He is still a fount of brilliant ideas, thought provoking insights, exuberant optimism, and titillating predictions.

Three decades of constant battle ended in partial victory - but Hart is as energetic as ever, straining at the next, seemingly implausible target. "A million books to a billion people in all corners of the globe."

Inevitably, he sometimes feels cornered. "They" figure in many of his statements - the cynical and avaricious establishment that will sacrifice anything to secure the diminishing returns of a few more copies sold. In the Project's life time, the period of copyright has been extended from an average of 30 years to an inane 95 years.

Moreover, no notice of renewal is required in order to enjoy the copyright extensions.

This protectionism hinders the spread of literacy, deprives the masses of much needed knowledge, discriminates against the poor, and, ultimately, undermines democracy - believes Hart.

Q. Project "Gutenberg" is a self-conscious name. In which ways is the Project comparable to Gutenberg's revolution?

A. When I chose the name, the major factor in mind was that publishing e-Books would change the map of literacy and education as much as did the Gutenberg Press which reduced the price of books to 1/400th their previous price tag. From the equivalent of the cost of an average family farm, books became so inexpensive that you could see a wagonload of them in the weekend marketplace in small villages at prices that even these people could afford.

My second choice was Project Alexandria. The major difference is that the Alexandrians *collect* e-Books, while the Gutenbergs *produce* e-Books.

Another way our Project compares to Gutenberg's revolution is that copyright laws were created to stop both.

When we only had a dozen e-Books online, the price of putting one on a computer was about 1/400th the price of a paperback. But obviously with 100 gigabyte drives coming down to \$100, the price of putting e-Books on computers has fallen so low as to be literally "too cheap

to meter." Those who like to meter everything on the cash scale are incredibly upset about Project Gutenberg.

Project Gutenberg is the first example of a "paradigm shift" from "Limited Distribution" to "Unlimited Distribution", now touted as "The Information Age". However, you should be aware that this is the 4th such Information Age.

Each such phase has been stifled by making it illegal to use new technologies to copy texts. In 1710, the Statute of Anne copyright made it illegal for any but members of the ancient Stationers' Guild to use a Gutenberg Press. Then, in 1909, the US doubled the term of all copyrights to eliminate "reprint houses" who were using the new steam and electric powered presses to compete with the old boy publishing network.

The third Information Age came in 1976 when the US increased the copyright term to 75 years and eliminated the requirement to file copyright renewals, to stifle changes brought on by Xerox machines. In 1998, the US extended the copyright term yet again, to 95 years, to eliminate publication via the Internet.

Q. The concept of e-texts or e-books back in 1971 was novel. What made you think of this particular use for the \$100 million in spare computer time you were given by the University of Illinois?

A. What allowed me to think of this particular use for computers so long before anyone else did is the same thing that allows every other inventor to create their inventions: being at the right place, at the right time, with the right background.

As Lermontov said in *The Red Shoes*: "Not even the greatest magician in the world can pull a rabbit out of a hat if there isn't already a rabbit in it."

I owe this background to my parents, and to my brother. I grew up in a house full of books and electronics, so the idea of combining the two was obviously not as great a leap as it would have been for someone else. I repaired my Dad's hi-fi the first time when I was in the second grade, and was also the kid who adjusted everyone's TV and antennas when they were so new everyone was scared of them.

I have always had a knack for electronics, and built and rebuilt radios and other electronics all my life, even though I never read an electronics book or manuals. . .it was just natural.

Let me tell you a story about how the Project started:

I happened to stop at our local IGA grocery store on the way. We were just coming up on the American Bicentennial and they put faux parchment historical documents in with the groceries. So, as I fumbled through my backpack for something to eat, I found the US Declaration of Independence and had a light bulb moment.

I thought for a while to see if I could figure out anything I could do with the computer that would be more important than typing in the Declaration of Independence, something that would still be there 100 years later, but couldn't come up with anything, and so Project Gutenberg was born.

You have to remember that the Internet had just gone transcontinental and this was one of the very first computers on it. Somehow I had envisioned the Net in my mind very much as it would become 30 years later.

I envisioned sending the Declaration of Independence to everyone on the Net. . .all 100 of them. . .which would have crashed the whole thing, but luckily Fred Ranck stopped me, and we just posted a notice in what would later become comp.gen

I think about 6 out of the 100 users at the time downloaded it. . . .

Q. Between 1971 and 1993 you produced 100 e-texts. And then, in less than 9 years, an additional few thousand. What happened?

A. People rarely understand the power of doubling something every so often.

In 1991 we were doing one e-Book per month. This was totally revolutionary at the time. People kept predicting that we couldn't continue, but we were planning on doubling production every year, which we did for most years. We are now adding 200 e-texts a month.

Q. Can you give us some current download statistics?

A. As for stats, this is pretty much impossible since we don't directly control any but one or two of what I presume are hundreds of sites around the world that have our files up for download. What I can tell you is that the one site we have the most control of gives away over a million e-Books per month.

Q. The Internet is often castigated as an English-language, affluent people's toy. PG includes predominantly English language, Western world, texts. Do you intend to make it more multicultural and multilingual?

A. I encourage all languages as hard as I possibly can.

So far we have English, Latin, French, Italian, German, Spanish, Chinese, Japanese, Swedish, Danish, Welsh, Portuguese, Old Dutch, Bulgarian, Dutch/Flemish, Greek, Hebrew. We have texts in Old French, Polish, Russian, Romanian, and Farsi in progress.

I wonder if we should count mathematics as a language?

I was surprised at how many people were interested when we first uploaded Pi to a million places. . .

Q. Why are stand-alone images (e.g., films, photographs) and sound excluded or rare?

A. We have tried some, but haven't received much feedback. Still, we will continue to experiment with all formats.

Also, these files are total hogs for drives and bandwidth.

Our short movie of the lunar landing is twice as big as Shakespeare and the Bible combined in uncompressed format. It's only a couple minutes long, and low-resolution. Think how big a whole movie would be, even not at hi-resolution. It would take up a couple CD- ROMs. . . .

Q. PG now makes files available as DOC/RTF and HTML - as well as plain vanilla ASCII. Yet, plain text delivery seemed to have been a basic tenet of the Project. What made you change your mind?

A. We're willing to post in all kinds of file formats, but the only format everyone can read is Plain Vanilla ASCII, so we always try to include that. PG has been available on CDs for years.

Q. The failure of the advertising-sponsored revenue model forces Internet-based content generators and aggregators to charge for their wares. Will PG continue to be free - and, if so, how will it finance itself? Example: who is paying for the hosting and bandwidth now?

A. It's all volunteer. . . . And the number of sites continues to grow, and to reach more and more regions around the world for easier local access.

Actually, all the hosting, bandwidth, etc. are voluntary, too. However, we desperately need donations to do copyright research, cataloging, to hire librarians and Library and Information Science professors, to support the Project Gutenberg spin-offs in other languages and countries, not to mention mundane things such as phone and utility bills, computers, drives, backups, etc. We need volunteers equally desperately.

Volunteering is perhaps the only way for one person to work for a week or a month on a book and get it to a hundred million people. . . .

Q. The reaction to e-books fluctuates wildly between euphoria and gloom.

A. This is only the commercial point of view. . . . They want to take it over or sink it to the bottom. . . . There are no other commercial perspectives. Between 1500-1550, thanks to the Gutenberg Press, more books were printed than in all of history previous to Gutenberg. I have hopes like that for e-Books. . . .

Q. Some say that e-books are doomed, having miserably failed to capture the public's imagination and devotion. Others predict a future of ubiquitous, ATM-printed, e-books, replete with olfactory, tactile, audio, and 3-D effects. What is your scenario?

A. The main trouble with these predictions is not only that they are made solely with the commercial aspects in mind, but that they are made by an assortment of people from pre-e-Book generations, who have no idea that you could use the same gizmo to play MP3s as to read or listen to e-Books.

The younger generations have no doubt about e-Books.

It's only the dinosaurs that have no idea what's going on. We are still getting email stating that not one person is ever going to read books from computers!

Who will be the more well-read - those who can carry at most a dozen books with them, or those who have a PDA in their pocket with a hundred or more e-Books in it?

Who will look up more quotations in context? Who will use the dictionary more often? Who will look up geographical information more often?

These are all things I do with my little antique PDA and the new ones are already a dozen times more powerful.

I want to tell you the story of when I first realized that Project Gutenberg was going to work. It was about 10 years before we published our 2,000th E-text. We had only about a dozen e-books online. At the beginning of 1989 there were only 80,000 host computers in the entire Internet - though by October that year the number had doubled.

I was on the phone one day, with the Executive Director of Common Knowledge, a project to put the Library of Congress catalogs into public domain MARC (Machine Accessible Record Catalog) records. During the conversation, there was this huge noise. She dropped the phone and ran off. She was back in a minute, and laughing her head off, she told me:

Her son had been playing around with her computer, and found this copy of Project Gutenberg's "Alice in Wonderland" and had started to read it. He mentioned this at school, and a few of the kids followed him home to see it. The next day even more kids followed. Eventually the number of kids grew so great that they were hanging off this huge oak chair.

Eventually this oak chair had so many kids all over it, reading "Alice in Wonderland"...that it literally separated into all its parts and kids went tumbling in all directions....At that very moment, in 1989, I realized that E-books were going to succeed, no matter what any of a number of adults thought. To the next generation, this will be how they remember Alice in Wonderland, just as my memory of it was a golden inscribed red leather edition my family used to read from together.

Four years later, in 1993, there were still under 100 Project Gutenberg e-Books.

A neighbor dropped by to talk to me one day and in the course of the conversation mentioned he had read the Project Gutenberg Alice in Wonderland. I had no idea his interests even included computers. He had found a few errors. I hurried home to correct them and to put the new edition online.

At first I was in happy shock just because I could improve our edition, but then it occurred to me that perhaps the more important aspect was that someone I knew had downloaded Alice all on his own, then read the entire book from "cover to cover" on his computer thus putting paid to the naysayers who said no one my age would read e-Books.

There are lots of stories like this: professors who tell me their students will not read paper textbooks, Texas preparing for all textbooks to be e-Books. . . .

Q. PG is a prime example of two phenomena characteristic to the early Internet: collaborative efforts and volunteering. With the crass commercialization of the Net - will people continue to volunteer and collaborate - or will corporate, brick and mortar, behemoths take over?

A. Well, the commercialization of the Web started in 1994, and that didn't wipe us out. It took us 30 years to do our first 5,000 e-Books, and I'll bet you a pizza that it will only take 30 months to do our second 5,000!!! Then we write up a schedule for 1,000,000!!!!!!!

Q. In other words: PG is the reification of the spirit of the Internet.

A. Definitely. . .So was "Ask Dr. Internet", another of my personas. . .

Q. Should the Internet change dramatically - what will happen to PG? Will you ever consider going commercial, for instance? If not, how do you plan to adapt?

A. Why should we go commercial. . .that just invites a downfall if the money goes away. Which they would love to happen -and would probably encourage it. It's hard to kill off something that doesn't have a physical plant or a budget. . .and cannot be bought. We will adapt by doing the entire public domain, including graphics, music, movies, sculpture, paintings, photographs, etc. . . .

Q. PG makes obscure and inaccessible texts as well as seminal works - easily and globally available. Doesn't this lead to an embarrassment of riches or to confusion? In other words: all PG e-texts are "equal". It is a "democratic" system. There is no "text rating", historical context, peer review, quality control, censorship ...

A. This is because I am not a very bossy boss. . .I encourage our volunteers to choose their own favorites, not just what "I" think they should do. However, I am sure we will get all the warhorses done.

Q. The e-texts posted on PG are copyright free or with permission from their authors and publishers. How do you cope with the inordinately extended copyright period in the USA?

A. I just finished up years of working on an Amicus Brief for the Supreme Court in the hope of overturning the latest copyright extensions. As for coping, you just do the best you can with the cards you are dealt.

Q. What are the effects of such legislation on public literacy?

A. The US used to say we would send aid to the entire world, in the form of food, clothing, medical supplies, as much as we could afford. But now that literacy can be disseminated at no expense, we refuse to do it by pretty much stifling the public domain.

Q. PG has a mirror site in Australia where copyright law is less stringent.

A. Actually, they are a totally separate organization, using our name with permission, just as does the Gutenberg Projekt-DE in Germany.

Q. Are such "backdoors" the solution? What about the DMCA (Digital Millennium Copyright Act)?

A. I am so a-political that you could call me anti-political. I would prefer a copyright of 10 years or so. .

Only the biggest of the best sellers might make 10% more after 10 years, and they don't need it.

Do we really want laws that support only the biggest and richest?

I love "The Bridges of Madison County", but I don't think 95 years, or even 75 years, or even 56 years of corporations, family and other heirs should be supported by it. It then becomes the "Duchy of Madison County" and we are stuck with generations of "Dukes of Madison County."

What we will end up with under these copyright laws is a "landed gentry of the information age" who just keep inheriting ...

Copyright should expire soon enough that the authors, if they want to keep getting paid, have to come back to work again.

After all, there is no other job in the world in which one piece of work can keep paying off for 95 years.

By the way, do you realize that Ted Turner made millions, probably hundreds of millions, from the copyright extension of just "Gone With The Wind", not counting the hundreds of other movies he owns. . .all from one vote of Congress.

Congress should not be allowed to write laws that create windfall profits for 1% of the population and take away a million books from all the rest.

Q. What does PG intend to do about the legislative asymmetry between content producers and creators - and content consumers? Lobby Congress? Testify? Protest? Organize petitions? Place "Gone with the Wind" on the Internet and wait for a show trial?

A. PG Australia already has done Gone With The Wind, as their 50th e-Book, that's good enough for me at the moment.

Eldred v. Ashcroft was originally drafted as Hart V. Reno, but the lawyers, Lessig & co, wouldn't include one word of mine in the case, so I fired them.

Q. Gutenberg texts are sometimes used as freebies within a commercial (Monolithic, Walnut Creek) or semi-commercial product (such as the Public Domain Reader). Is this acceptable? Why don't you charge them a license fee?

A. Walnut Creek PG CD's weren't free and they sent us nice donations. The commercial outfits have to pay for a license, the non-commercial ones usually don't. Each case is separately decided. While we don't do any ads on our sites, we don't insist that others don't.

Q. Technology is often considered the antonym of "culture". TV, for instance, is berated for its vulgar, low-brow, programming. Hollywood is often chastised for its indulgence in gratuitous violence and sex.

A. No one ever went broke underestimating the intelligence of their audience. As long as these are "commercial applications" that's what you will get. What else could you possibly expect? These are all examples of "capitalism gone awry".

By the way, I'm not anti-capitalism, I really am an Ayn Rand freak, figure that out. . .hee hee!

I am doing Project Gutenberg for the most selfish of reasons - because I want a world that has Project Gutenberg in it.

Q. E-books are equated with low-quality vanity publishing. Yet, PG seems to embody the conviction that technology can do wonders for the dissemination of culture, literacy, democracy, civil society and so on.

A. e-Books do wonders for the dissemination of culture, literacy, democracy, civil society and so on. You do realize that the Declaration of Independence is/was the FIRST man-made item in all of history that everyone can have, in as many copies as they want. Do you realize that a 5 gigabyte section of a hard drive can hold a million copies of that file, uncompressed?

Terabyte drive systems are already available for only around \$2,500. Ten years from now 5T hard disk partitions will be able to hold a billion copies.

Q. Are you a romantic believer in the power of technology to bring progress?

A. Well, I'm certainly an incurable romantic, and I believe that technology can bring progress, but I don't know if they are, or have to be, related. . . .

Q. And do you see any dangers in e-books and freely available e-texts (e.g., hate speech)?

A. Once you start censoring, you are playing with Pandora's Box. Just look at what they are doing with Little Black Sambo, who wasn't even black, and with Uncle Remus, who was? This is awful. "Song of the South" was required viewing when I was in school and now I can't even show this generation what we were required to study when I was a kid. . .1984 really did arrive. . . .

Q. In some ways, you "compete" directly with other bastions of education - libraries and universities. How do you get along? What about other repositories of knowledge such as Project Bartleby? Governments?

A. Actually, we cooperate with them, not compete with them. We make all our files available to them and encourage them to make the texts available to everyone. Some of them view this as competition, but we don't. Some prefer to control distribution. . .to be a gate that they can open and close at will. . .We prefer the doors always to be open.

Have you ever considered why, with the hundred millions of dollars granted to found e-Libraries at the major universities some ten years ago, and undoubtedly hundreds of millions more donated since then, why you are doing an interview with someone sitting at a basement, running computer hardware and software that is 10 and 20 years old?

If any college, or company, much less university, city, county, state or country was willing to do this, you would have never heard of me.

Q. What has been the personal cost? It must have been frustrating and exhausting and elating and rewarding ... In retrospect: are you happy with it? Would you have done it again?

A. I can't think of anything more rewarding to do as a career than Project Gutenberg. It is something that will reach more people than any other project in all of history. It is as powerful as The Bomb, but everyone can benefit from it. And it doesn't make a decent weapon. It doesn't cost anyone anything and it is the very first, though obviously primitive, example of The Neo-Industrial Revolution, when everyone can have everything - though they are sure to pass a law against it.

I said this in 1971, in the very first week of PG, that by the end of my lifetime you would be able to carry every word in the Library of Congress in one hand - but they will pass a law against it. I realized they would never let us have that much access to so much information. I never heard that they passed the copyright extension 5 years later. It was pretty much a secret, just as is the current one, unless the Supreme Court strikes it down. Only then will it make the news.

Congress passed that copyright law together with impeachment proceedings of President Clinton, just to make sure it never made the news.

As far as the cost, the happiness, the frustration - I am a natural born workaholic and idealist, so I overcome the technical frustrations. It's the social frustrations that are the hardest to deal with, the people who want permanent copyright, even though the extensions are already bringing about "The Landed Gentry of the Information Age."

Q. Any thought about the future?

Precedents set by the Sonny Bono Copyright Law could well have an enormous unpredicted effect on computer applications of the future. One such application is the "printing" of solid three dimensional objects, often referred to as Rapid Prototyping, or RP. These printers have been with us since the 1980's and now are in a price range of the 5 megabyte hard drives on the first computer to house Project Gutenberg in 1971. If you count the inflation factor, they obviously are much more affordable.

In addition to cost reductions, these 3-D printers now can print on a variety of materials. The list of printable substances should expand over the years until we can eventually print out actual working items, rather than the models we print out today.

Given that very inexpensive printers today can print in millions of colors, and that color computer printers were pretty much non-existent 30 years ago, we should at least consider the possibility that printers 30 years from now might be able to "print" on an extremely wide variety of materials, and that someday we will be able to "print out" a car and drive it away.

This copyright law covers 95 years. Let's look back to 95 years and see the "copyright" to what things we may want to print out would have just now expired:

1. The Wright-Brothers' airplane and blueprints.
2. A dozen brands of early automobiles.
3. Everything Edison invented until he was nearly 60.

Obviously there are many more.

The point here is that under current intellectual property law, it would be difficult to print out anything invented today that reached the market in two years - until 2100, a time when these items would no longer have any use.

When the Star Trek Replicators become a reality, will it be illegal to actually use them?

Will all food items be Genetically Manipulated Organisms so that it will be impossible to find natural foods that could be copied?

When I grew up in Washington state, there were plenty of wild blackberries, raspberries, apple trees, pear trees, plum trees, grapes. I never even considered buying any of these at a store. But today there has been a serious effort to discourage free food supplies, and not only in Washington, but also in most other states.

Last night at dinner, one of our volunteers remarked that he expected that by the end of his lifetime he might be eating a dinner of replicated food. I pointed out that by that time - "they" would make it very difficult to find any kind of food not protected against replication by intellectual property laws and that THAT was one of the major reasons for extending copyright, so that WHEN it would be possible for everyone to be well-read & well-fed, they will have made it illegal to do so.

The trend is that everything should cost something. In some places there are even machines that dispense a breath of fresh air. . .for a price.

Do we really want to create a civilization in which everything has a price. . .when there are machines that could copy anything?

How Michael Hart Revolutionized the Internet

March 8, 2009

In the annus mirabilis of 1971, [Michael Hart](#) conceived of electronic books (e-books), open sourcing, and of user-generated content in one stroke of genius.

Hart established [Project Gutenberg](#): a repository of tens of thousands of public domain texts, freely available online. It is the largest and most comprehensive of its kind and has spawned numerous imitators, emulators, and mirror sites. E-books became a mainstream item with giant commercial enterprises - from Microsoft through Yahoo and Amazon to Google and Barnes and Noble - entering the fray.

[Project Gutenberg](#) relied on the contributions and input of volunteers from around the world, who digitized public domain books in accordance with an ever-evolving set of rules. The software underlying the Project was available to be modified, tinkered with, and replicated on other Websites. This model of collaboration now underlies open source software, "crowdsourcing", and projects such as the [Wikipedia](#).

Most pundits agree that in the history of knowledge and scholarship, e-books are as important as the Gutenberg press, invented five centuries ago. Many would say that they constitute a far larger quantum leap. As opposed to their print equivalents, e-books are [public goods](#): cost close to nothing to produce, replicate, and disseminate. Anyone with access to minimal technology or even the oldest computers can read e-books.

Project Gutenberg eBooks were being read on iPods within a week of the latter's introduction, not to mention cell phones and smarter variants thereof, such as the iPhone. With well over 4 billion cell (mobile) phones (according to the United Nations) compared c. 1 billion computers, the former may well turn out to be the preferred platform for reading text.

Over the years, I have interviewed Michael Hart and we have corresponded prolifically on a variety of topics. I have always relished his anti-authoritarian streak. Michael is a true, unvarnished and non-compromising independent, out to empower the individual at the expense of faceless, heartless corporate and government bureaucracies.

March 8 being Michael's 62nd birthday, we have decided to publish snippets of our exchanges.

Happy Birthday, Michael!!!

Sam:

Some people refer to you as "The First Citizen of the Internet" ...

Michael:

Perhaps because I was the first person to be on the Internet's systems without being paid to do so. Everyone else I knew of was a government employee, staff, or one of the student slave wage computer operators, their bosses, etc.

I was certainly "none of the above."

I was probably the first "hitchhiker" on the Internet and that helped to give me the unique perspective that led to the creation of Project Gutenberg, Open Source, virtual communities, and a host of other things we all take for granted now.

Project Gutenberg was the first "site" on the Internet, the first place people went to download materials, general information, and so on. There may have been similar things at the companies that serviced the mainframes, but certainly not the general stuff the public could download or upload that we see today.

I certainly appeared to be the first to view computers as a huge communications network independent of their computing ability.

I remember saying, back in 1971:

"Computers Aren't Just For Computing Anymore."

Sam:

I've heard various versions of the events of the night of July 4th, 1971. What really happened?

Michael:

I realized I had a BIG IDEA, the lightbulb went on at 1:41 AM, on July 5th.

It was a sultry night, and after the fireworks I wasn't sure whether I'd be better off trying to find somewhere to crash on campus to save a lot of hot walking right then, and the return trip in mere hours.

So, I decided to see if I could get into Materials Research Lab (where I was not always welcome), where the Xerox Sigma V mainframe was (and where I *was* always welcome). Then, as now, there were already people who viewed me as a real threat to their hard-won positions of title and power.

The fact that I "lived" behind the stainless steel window, where they had to come, praying and paying, hoping that their programs would prove worthy of the mighty machine. . .well. . .I hadn't really realized it yet, myself, but it bothered a lot of people, and I was routinely locked out of the building with the aim of precluding me from doing my homework in the air-conditioned quarters - air-conditioning being a status symbol and one of the perks they had enjoyed.

That night in particular was going to be tough, as it was late and not a school night, so the

building would already be tight, and only the hardest of hardcore workers would be there, the kind, I must add, that liked me the least.

So I spent nearly an hour casing the entire first floor with no luck other than to have one of the aforementioned people who thought I didn't belong there refuse to let me in when I asked. I suggested he should call the police if that's how he felt about my presence. He knew that the police would ask the night operator who would know it was me, and I would be let in. It was nasty, but funny.

Finally, just as I was about to give it all up and snooze there on the lawn for a bit, I heard someone come out and I jumped up and ran around the building, but it was too late, the door closed and I was locked out once more. However, being a slightly forward young man, I asked in a plain up front manner if they would go back and let me in, so I would not have to walk home that night. I explained that I was NOT on the list and that technically the whole process was probably more or less illegal, but they went back to the door to do the honors of letting me in.

I ran upstairs to the Sigma V, and was let in so fast it probably made the heads spin on those who thought I must not be allowed such privileged access.

The first thing I found out was that my own personal account on the Sigma V had been approved. . .not that I wanted one at all.

You see, the boss of the people I knew there felt there was the risk of something bad happening unintentionally as I poked in a very amateurish way around the computer. I had actually been mentioned in their meetings as a risk factor. The solution, rather than throw me out as some in there would have preferred, was to give me my own account, with a lot less power, permissions, etc. than the "operator account" I had been using all the time, having memorized my friend's password.

Thus, as of July 4, 1971, I had my own account with some staggering amount of computer money in it that I would never be able to use up, but was told there was plenty more, no worries.

Now just to be honest here, I rarely, if ever, used the account I had just been given, simply because I had already memorized a very hard password, and mine was even harder. I did bill my jobs to the new account number, so the people who had been kind enough to open this legal door for me would think I was using it properly.

So, after all the hoopla, I had to figure out the right thing to do with all my new found legal computing power.

I didn't have a clue. . . .

I was hungry, I was tired, it had been 11PM before I even got a foot in the door, I had no ideas percolating in the wee hours. So, I decided I should pump up the blood sugar levels with some goodies I had bought on the way from the fireworks and I dumped my bookbag on the floor to get some brownie mix when out popped a faux parchment copy of The U.S. Declaration of Independence.

The lightbulb literally went on over my head like in the cartoons!

You see I had wanted to put something on the Internet that was going to stay there, ever since the first day I had learned we were on this new network that would let us send messages, files and whatever else to Berkeley and Harvard simultaneously and to bunches of other hotshot places in between.

Apparently no one had ever done such a thing and I thought it was the perfect thing to do.

I got permission and was told that if I finished by morning I could move immediately into the next step: an accessible file for anyone who wanted it. They even promised to write up a note in what would later become "comp gen" (general notes for computer users) about how to obtain the file.

So, I sat up all night long typing, proofreading, typing more, proofreading more, printing, reprinting, typing, retyping, and finally, just at the deadline, I had something to send to what I believed would be a whole world of readers.

I handed over my little spool of paper tape just in time for a changing of the guard to the day shift, and I was feeling just fantastic, when it turned out the person receiving it was. . . are you ready. . .my best friend! You see, I had always been there on the night shift and off to my 8AM classes before the shift change.

"What are YOU doing here?!?!?" I exclaimed.

"What am I doing here?!?!? What are YOU doing here?!?!??"

"I'm always here!!! This is where I do my homework."

"I WORK here!!!"

"No, I AM ALWAYS HERE. . .I WORK HERE!!!"

Well, it was a long funny conversation sorting out all the times that we must have just missed each other. My brother's best friend ran the midnight to 8AM shift and my best friend ran the 8AM to 5PM shift, but we never knew of each other's existence!

So, that was how the first title of Project Gutenberg got onto the Internet and why it was The Declaration of Independence.

Sam:

Almost forty years later, the publishing industry, pundits, and professions still don't know how to "digest" eBooks ...

Michael:

Invariably, the first thing the pundits and professionals say is that there aren't enough eBook sales to really matter. This is, of course, one of those "category errors".

That ebooks equal money is obviously a false statement, even in light of how much media exposure financial behemoths such as Google, Sony, and Amazon get whenever they mention their eBook programs. Yet, even when toeing the line to generate PR for these giants, the media do not give much in the way of real data to work with.

Consider Project Gutenberg:

The media almost always provide the smallest possible number for Project Gutenberg of under 30,000 titles, even though the grand total of all Project Gutenberg titles available passed the 100,000 mark several years ago. On the other hand, they refuse to mention that Project Gutenberg gives away millions of eBooks per month. Admittedly, they also declined to even speculate on the total sales of Sony and Amazon readers until they reached approximately a million units between them, just recently. Think what they would write if iPods and iPhones sold only a million units combined, they would be branded a FAILURE.

Another example of media corporate bias:

As I said, Project Gutenberg eBooks have been available on iPods and iPhones since their very first week of sales. Google was just rewarded by yet another round of PR for its cellphone eBooks and again there was no mention that Project Gutenberg eBooks in a number of formats have been on many cellphones for years now! In fact, we are adding another new cellphone format even as we speak.

I have been touting cellphones as the wave of the future since the days before the iPhone. . Steve Jobs is one of the brightest, and I hope his health improves, we need people like him, desperately. Try thinking what the world would be like if there had never been a Steve Jobs. Where would the computer industry be?

As for Google, the truth this, I am pretty sure they peruse articles I write in detail, as it never seems to take them too long to "invent" whatever it is I have been pushing the last few years or decades.

The major statistic the pundits and professionals never mention is on what day will there be more eBooks than paper books. Then comes the obvious follow up: How many of those eBooks are available as free downloads? Governments don't seem as interested as they should be either, perhaps because they don't derive any tax revenue from free eBooks.

What is it about every generation that makes them think they can tell the next generation[s] how to dress, how to cut their hair, what kind of music they should listen to, etc? When it comes to eBooks it is much the same: "Your books should look as much as possible like our books"; "We want the look and feel of a real book, not of a computer"; "We want only our own favorite editions to be available, edited, of course, by our own favorite editors from days gone by but not so far gone by that copyright has expired"; "We want pages that look like

pages even if there are no pages"; "We want fonts from the period rather than choose you own font."

In other words, these people want to make all the decisions in a world in which all the decisions should belong to all readers. Any reader should be able to read ebooks in their favorite font, and there should be no opinion allowed from the peanut gallery.

Thorough control is what these people want. If, or when things get out of control, even music, hairstyle, reading, they quake in their hobnail boots for fear that they have lost control. A great number of the very wealthy are more concerned with having and maintaining CONTROL than even getting richer: they want to CONTROL what we read, to KNOW what we are reading, as in being able to tally up and record all the bookstore receipts, library cards, etc. . .but with eBooks. . .they never really know, do they?

The same goes for browsing through all the Shakespeare editions rather than listening to interminable argumentation as to what should be the correct punctuation of "To be, or not to be." When it comes to the first time you read Shakespeare, it doesn't really matter what edition it is, that's not what you notice, you notice the pure genius and poetry of story.

"Do it right/perfectly the first time."

If I had taken that advice I'd still be back in 1971 with competing copies of "The Declaration of Independence," since none of them agreed as to how the document should be.

You probably could never believe how often people tried to slow me down with Project Gutenberg, with the only common thread being that I should do things THEIR way, and much more SLOWLY!!! If I had waited even HALF as long as they wanted, we would not be having this conversation, and you would have never heard of ebooks, certainly not from Project Gutenberg, except as in possibly the most obscure of footnotes.

The most important part is just to get started with the books; the rest are extras. Yes, you can get more out of a book by reading about it, but the process usually starts just by reading the book over again with nothing but your own opinion and the fact that you LIKE it. We seem to have lost track of the idea/ideal that we should actually LIKE what we are reading.

To enhance our experience, we should be able to choose the font, margins, etc., except, of course for songs and poetry, but, in general, ebooks should look the way WE want them to look, not the way some ivory tower academic decided they should look generations ago. If we read more easily in a blue or green font, that should be our choice. If we want to hear various voices "read aloud" the ebooks, those should also be OUR choices.

With ebooks, at least the plain vanilla ones, all these choices belong to the reader.

With paper books all those choices belong to publishers.

"Power To The Reader!"

Sam:

You use the phrase "eBooks Too Cheap to Meter" from time to time. Can you tell me what you mean by that?

Michael:

Fifty-five years ago, Lewis L. Strauss, Chairman of the Atomic Energy Commission, said to the National Association of Science Writers, in New York City:

"Our children will enjoy in their homes electrical energy too cheap to meter" along with other such predictions, as reported in The New York Times in their September 17, 1954 issue.

Of course, as we all know, electric rates never went down, quite the opposite. To a degree, this allowed brownouts, blackouts, and the entire Enron fiasco to appear to be legitimate shortages when, in fact these amounted to a scam to bilk millions of people out of billions of dollars. No matter how you look at it, nuclear power has NOT given us electricity that was too cheap to meter, or anything like it.

However, since 1971, various Internet projects, originating with the e-library of Project Gutenberg, HAVE give the world all sorts of products literally for free, or at a cost too cheap to meter. For some time now, you have been able to get c. 100,000 ebooks from the library of Project Gutenberg, free for the taking, and 1,000's more are being added every year. In addition, there are now 1.25 million somewhat less polished ebooks at the Internet Archive, many of which are being adapted and cleaned up by the likes of Project Gutenberg and others. Even without counting Google, there are plenty of ebook sites worldwide, with totals into the millions, all at no charge to the reader.

This is certainly ONE promise the Internet has kept, though the professionals and pundits of the media seem to like keeping it under wraps.

Every July 4, on the anniversary of the first Project Gutenberg ebook title, entire e-libraries gather to form "The World eBook Fair" (<http://worldebookfair.org>). Last year, the Fair comprised over 1.25 million free ebooks from major e-libraries and over 100,000 available at a discount from various commercial eBook providers.

This doesn't sound like much compared to the figures above, simply because the growth of the number of ebooks is so fantastic that any quantity you can put in any collection in the span of one year is guaranteed to be dwarfed in a very short time. However, if we are lucky, we will see TWO million ebooks in 2009 available for any visitor to take home.

The World Public Library (WorldLibrary.net) offers a half million very nicely packaged eBooks in PDF format and full price subscriptions are only \$8.95 per year, with multi-tiered discounts for schools and other groups. Half a million books for under \$9??? Go ahead, figure out the average price per book ... Sounds like "TOO CHEAP TO METER" to me!!!

Today you can buy terabyte drives for \$99. I should know, I have 5 of them, plus my now antique .5T drives and smaller. 5 terabytes. 5 trillion characters. Not counting compression, or it would be 12.5 trillion characters. The first Project Gutenberg files were about 5 thousand

characters each. Two hundred such files equal a megabyte. Two hundred thousand such files equal a gigabyte. Two hundred million such files equal a terabyte.

My five drives could hold a BILLION such files! With compression it goes up to well over TWO BILLION such files.

Ok, they are small files, particularly by today's standards. But, let's go for BIG files such as The Complete Shakespeare or King James Bible. Circa 5 million characters in each of those massive files. I could have about a million copies of those files in my 5 terabytes. Five terabytes that didn't even cost as much as this laptop I am using. Do you get the idea?

Anyone could add a library of a million very large books to any new computer without even doubling the price, or 2.5 million very large books if you were to use zip or rar files, or 5 million more average-sized books. LOTS of books, at a price per book literally too cheap to be worth figuring out! You can OWN YOUR OWN LIBRARY!!!

Think about it for one minute right now, right here. . .please!

There are only about 100 or some libraries in the whole world with 5 million books or more. YOU COULD ENTER THAT VERY RARIFIED FIELD. . .at practically no cost.

Obviously, if any government really gave more than "lip service" to the idea of literacy, or of education, we would long ago have been inundated with very large public project e-libraries in virtually every country in the world. As it is there are only a few worthy of mention, and none of them have large quantities of books compared to the numbers listed above.

eBooks Too Cheap To Meter are coming from "the private sector," not even counting those from Google, particularly since Google makes it difficult in the extreme to count them. However, if you take Google's word that they have 7.5 million titles digitized, then it is obvious that there are already 10 million eBooks in the world, most of them free or "too cheap to meter." There's something to do with your new stack of terabyte drives!

Sam:

What about the Kindle? Will it spark a revolution and "legitimize" e-books?

Michael:

Dedicated machines (remember the Wang word processors) are disadvantaged compared to multipurpose machines, particularly when they are in the same price range.

Speaking of cheap terabytes, I have a question for Amazon and Sony: why the really tiny RAM allocations in their readers?

After all, for \$99 anyone can attach a USB terabyte drive to anything. Or, if power supplies are a no-no, you can attach a USB "thumbdrive" to nearly any device these days, or one of the other formats that can fit the various adaptors. I have most of these formats and they run fine either in their own adaptors, or in the various flash readers on the side of my laptop.

When all of these flash drives are in gigabytes, why do we keep getting megabytes Amazon and Sony on their ebook reader devices? Is it just to keep their customers from realizing that their "reader" is in a state of near total emptiness? Why buy a dedicated reader for hundreds of dollars that has MEGABYTES in it instead of gigabytes?

During the preparation of the current interview, the new Kindle 2 came out with just enough available user storage to claim it was in the gigabyte world, though not enough to actually claim the plural, since the user can't really get at any more than 1.4 gigabytes. They say this is enough for 1,500 eBooks so they are obviously not counting a million characters a book as I have been, but it's pretty close, I admit.

Still, a cutting edge 2009 computer product with a storage of 1 gigabyte? Why? Something is wrong. Are Amazon and Sony "dumbing down" the products to make them look fuller than they really are? Nothing else makes sense. How many devices are there out there that cost hundreds of dollars that are set up for RAM storage of approximately one gigabyte? By the time you buy your Kindle and put a decent cover on it, you are up to the \$500 range. . .enough to add 5 terabytes to your existing computer. Heck, my cellphone is already up for replacement and it has a gig in it and can hold at least 8 gig in the same slot.

This makes no sense at all, at least until you realize that Amazon sells an eBook for \$10, so doesn't want you to feel your machine in empty, after you spend hundreds, or thousands of dollars more on eBooks. After all, at their 1,500 eBook figure, that's \$15,000 to fill 'er up. Additionally, the Amazon Kindle store mentions that their USB port is made to connect to power or computers, but no reference is made of connecting to RAM, drives, or any other external storage units.

Let's compare the Kindle to the iPod. Can you buy an iPod with only one gig of RAM? The smallest regular iPods were 4G, and are already passé. iPod Classic sports 120G at a cost of \$229 to \$249. iPod Shuffle: 1G and 2G at \$49 and \$69, respectively. They don't make the 160G version any more. iPod Nano used to offer 4G, but now it comes equipped with 8G or 16G at \$149 and \$199, respectively. And these have a screen. You can read eBooks on any iPod with a screen, best would be on iPod Touch.

iPod Touch looks like an iPhone, but thinner. It offers audio and comes in 8G, 16G and 32G versions (cost \$229, \$299 and \$399, respectively). It has a built in speaker, uses Wi-Fi, email, browsers. You can use your iPod touch as a stereo remote. You can read in portrait or landscape mode by just rotating it. Why would someone build something in the same price range as the 32G iPod Touch with just a 1.4G slice of available RAM?

I can go out and buy a 32G USB flash drive for ~\$50, and attach it to nearly any computer or any device with USB ports, except to devices such as the Amazon and Sony dedicated eBook readers. Still, it doesn't really cost anything to port to USB thumbdrives, so the reason must be to make it not quite so obvious how much it would cost to fill up your Kindle or Sony with eBooks.

I, personally like the iPod and you could get one of the iPod Touch machines to read out loud since the operating system is Linux. In fact, I'm working on porting a Linux reader right now, and may put the entire thing into a totally Open Source mode when it's done.

Sony and Amazon readers have big screens and this allows them to try to preserve the look or feel of books as they are today (though, not as they would surely be tomorrow). Maybe it's the generation gap between the people who think GameBoy screens, cell screens and iPod screens are sized just fine and the Baby Boomer generation who now have to resort to bifocals, reading glasses, and large fonts as Lasix.

But, the functionality of ebooks does require that we emulate the look of books as they are today. Computers aren't just for computing any more, and books aren't just for reading any more. Books are becoming a much more active frame in which you can leap at the speed of light from one reference to another, and the more of these references you have, the better it works in the totality of the book experience. The more books, the more functionality; fewer books equal more limited functionality.

What will happen when you can WEAR millions of eBooks on your keychain or on a lanyard? This is obviously going to happen and probably sooner rather than later, as people who bought 8 megabyte USB drives for \$60 not even 10 years ago and are now buying 8 gigabytes for \$40 right over the counter at Wal-Mart can attest.

By 2020 we will be talking terabytes instead of gigabytes, and there will be reason enough to carry an entire e-library simply as a general resource, a kind of a GPS for the mind. Perhaps that is what e-libraries will become in the next stage of their evolution with program assistance to help you find your way through millions of books you carry. The likes of Amazon or Sony who want you to only think in terms of a limited quantity of ebooks at \$10 each will vanish. Instead there will be millions of free books.

Sam:

Back to Project Gutenberg. Are you satisfied with where it's at?

Michael:

Project Gutenberg has certainly achieved every quantitative goal I have set for it and usually on time and under budget. Originally, I simply wanted to prove the feasibility of ebooks. I thought that 10,000 reasonably executed ebooks would do the trick and I was hoping to achieve it by the end of 2001. Fact is, we barely survived at least one of those years when our donated financing mysteriously vanished. In fact it happened more than once, which is why we ended up spending money on creating The Project Gutenberg Literary Archive Foundation to take over these responsibilities ourselves and to make sure our funding never vanished again.

Certainly such events are disappointing, but in the end we would be much stronger as a result, and we would be more certain of being able to weather financial storms in the future. What it all comes down to in the end is that I am a proud founder of perhaps the world's largest organization that really, truly, has nothing you could call a budget. In all these nearly 40 years, in all our various incarnations, we have never had, nor have we spent a total of a million dollars.

This translates to merely \$25,000 per year, and each year we had better raise at least that much. Still, we really don't need more to survive, repeated dire warnings by pundits and

professionals that we won't make it another year notwithstanding. I am most proud of Project Gutenberg having demonstrated that it doesn't take any real money to change the world via the Internet. After all, "On the Internet no one can tell you are a dog." (I think that's from one of the early "Dilbert" comic strips).

I am not disappointed with how things turned out. With an initial goal of 10,000 ebooks, how can anyone say that having made 100,000 ebooks available is a failure?

I am also not disappointed that Google stepped in when they did, as this was right on schedule: They must have read my words and were ready to pounce the moment we proved feasibility by creating a library of 10,000 freely downloadable ebooks, all handcrafted.

Of course, there was some sting when the big media blitz back on December 14, 2004, never mentioned Project Gutenberg, or indeed, hardly mentioned Gutenberg himself. If I had not known better, I would have presumed that Google had just invented ebooks! However, the fact that the \$100 billion dollar plus Google spends an awful lot of money following my lead is somewhat pleasing, in a "Wag The Dog" sort of way.

Apparently, all I have to do is sufficiently promote an ebook idea, and Google or Sony or Amazon will implement what I have suggested. Just look at the current hoopla about ebooks on cellphones, or a "read aloud" system for ebooks. This is something that I have been promoting very hard for years, and I can hardly feel bad if the "Billion Dollar Boys" serve as the producers of my ideas, no matter how ignored my contribution is. It doesn't matter, because I know, you know, and others in the know know, that these were my ideas to start with. I never copyright or patent my ideas. I always leave them free for the taking, my entire life, because for me it is the transformation of the world that is important, not getting the credit (or the money) for it.

Those pundits and professionals who pooh-poohed ebooks year after year because no one was plunking down billions in the marketplace, failed to take the non-commercial aspect into account with Project Gutenberg's big central site (<http://www.gutenberg.org>) handing out millions of ebooks month in and month out for who knows how many years now. These same "experts" won't tell you about the intentional roadblocks to keep the readership off of commercial ebook readers (though, of course, if you know a 15 year old hacker, these obstacles are not a real problem).

Obviously, it is not quite as easy to read Project Gutenberg ebooks on the Kindle, Sony, Rocketbook, etc., as it should be, simply in order pressure people into paying for what is already available free of charge. In fact, one of our local world famous libraries PAYS to get the Project Gutenberg ebooks, PAYS HUGE MONEY, simply because they have been fooled into thinking their commercial provider has improved the ebooks somehow. Actually it is the opposite, as Project Gutenberg releases new and improved, and corrected version of the same ebooks hundreds of times per year, but a commercial provider will rarely, if ever, take the time and effort to do the same.

Disappointing? Yes. Will it stop Project Gutenberg? How?

Project Gutenberg was on the iPod a week after it came out. iPhone stores have been carrying Project Gutenberg for months. We also are available, free and commercial, in other venues.

Why? Because cellphones numbers already total well over 4.2 billion while computers stagnated at the billion units mark.

Disappointment? Sometimes, for example when libraries who feature CDs and DVDs of music, movies, other multimedia events, refuse to feature ebooks in exactly the same formats and physical media. There's something of a "sacred cow" about books it would appear. However, this does not stop the library patrons from bringing a collection of ebooks to the library and making copies of them upon request. This is precisely how an enormous number, in the millions, of Project Gutenberg's ebooks, have reached the public. The same applies to schools, colleges, universities, etc.

I should also mention that "Sneakernet" is still alive and well, and Project Gutenberg ebooks, as always, travel farther and wider than just the Internet, as people literally put on their sneakers and run down the street to deliver CDs and DVDs of our ebooks.

Disappointed? The question really comes down to whether you "see the glass as half full or as half empty." I certainly can bemoan the fact that hardly any major government has figured out that ebooks are the way to an educated future. However that doesn't seem to stop their citizens from warming up to ebooks on their own, without government assistance and without any mention let alone endorsement by media pundits and professionals.

As Victor Hugo said: "Greater than the tread of mighty armies is an idea whose time has come." And: "To learn to read is to light a fire; every syllable that is spelled out is a spark."

As Michael Hart said: "Encourage The Creation And Distribution Of eBooks!" and "Break Down The Bars Of Ignorance And Illiteracy!"

Sam:

Recently, copyright terms have been extended by law all over the world. Does this threaten the public domain and the production of free e-books?

Michael:

The new copyright laws do more than threaten the public domain, particularly here in the U.S., where the Supreme Court decided in "Eldred v Ashcroft" (previously labeled "Hart v Reno") that the U.S. Congress could keep extending copyright ad infinitum in spite of the fact that the U.S. Constitution prescribes a time limit. I guess we are truly living in the world of post "1984" where they can say anything is official government policy no matter what is indicated by history or previous government policies.

So, what we have in the U.S. is now a virtually permanent copyright term that can and will be "legally" extended forever, will consequently never expire and never enter the public domain. It is obvious that governments not only are NOT supporting ebooks (except with "lip service"), but are actively moving to confine free ebooks to works created in antiquity and no later. This is what happens when you let publishers determine the law that governs their own copyrights.

Remember when Ted Turner "donated" a billion dollars to the U.N.? All he was doing may

have been repaying the favor that extended copyrights that "earned" him billions more on his extensive library with movies such as "Gone With The Wind" [copyright 1939] which would have expired 56 years later in 1996, now will never expire. Copyright extensions are lobbied into effect by the World Intellectual Property Organization (WIPO) which is a long arm of the United Nations! "You scratch my back and I'll scratch yours."

My own career has revolved around eBook production and distribution. . .all of it totally cost free. If I, with such meager means, can put a hundred thousand ebook titles online and have been doing it since before the dawn of the Internet, what's keeping this galaxy of organizations that SAY that "literacy and education are the highest goals" from actually DOING EBOOKS???

There are billion dollar publishing cartels which promote publishers' interests, even to the point of being incorporated into the U.N. (as in the case of WIPO, the World Intellectual Property Organization). This worldwide cartel of publishers is descended from centuries-old cartels whose major goal has been the extension of copyright.

We have HUGE multinational corporations whose task is the virtual elimination of any future expiration of copyright, thus applying a stranglehold to a public domain that used to include half of everything ever published.

In the past, copyrights used to expire in a normal lifetime. Now you really can't hope for the expiration of copyright of anything you partake of as a new product. From cradle to grave, it's all copyrighted. If you take your 5 year old kid to see a new movie, that kid will have to be over 100 years old before they can legally republish it or create a derivative work. The same applies to books and music, of course. Copyright could this way used to thwart trends in music, art, movies, etc.

The last major U.S. copyright extension was in 1998, and was an issue I was preparing to testify about in Washington, DC, as I had in 1995 in the first Senate Internet hearings. However, there were some serious political events going on - and I had no idea how related they were at the time.

The copyright bill was passed, by a voice vote, meaning that no record was kept of who voted for or against. Thus, a vote of that importance was kept hidden from the public, and from myself, for weeks to come, by timing it to coincide with and so be eclipsed in the media by the bill of impeachment of President Clinton. There was no way to get anyone's attention on copyright. It was a done deal done deal before it even started. All that was left was to determine just how badly the public should get screwed, not whether the bill would become law or not.

I am no conspiracy theorist. However, no one will deny the effect of lobbyists on legislation. The publishing industry cares not about killing the goose that lays the golden eggs. Project Gutenberg is just such a golden-egg laying goose. Every year we produce thousands of high-quality titles for the world to have free of charge. There are those who would prefer this to cease. They go by the motto of: "More For Me Is Better, Less For You Is Better."

It's the same kind of equation the overseers used in slavery to provide the slaves with the absolute minimum to get the work done and leave nothing for education, development, or rebellion. In so many ways members of today's middle class are reminiscent of the slaves and indentured servants of just 150 years ago: they work the most, shoulder most of the tax burden, and partake of less educational opportunities. Vacations for the American middle-class? Gone! Their entertainment? Comparable to the "Bread and Circuses" of Rome.

It's all just a game to keep you watching Big Brother so that he's not going to have to spend all that time watching you, even if it is so much easier to do so nowadays. Much of ebooks history (or, rather, non-history) has been the result of POLITICAL decision making! Other than the revolutionary thinkers at MIT, there were hardly any schools in the world willing to put their ebooks online.

I received a letter from a rather famous university president asking about putting an entire selection of his school's textbooks online. I said this was a great idea and I couldn't wait to start helping. Never heard a word from him again. Personally, I think some chancellor reminded him just how much cash came in from selling the books, and from the publishers' support.

Do you think no country could out-compete Google? Or The Internet Archive? Or The World Public Library? Or even Project Gutenberg. . .to the point you would have never heard of any of these? Not to digitize ebooks is a POLITICAL decision!

No government WANTS a truly well read, well educated public!

Sam:

You seem to have a strongly-accentuated streak of anti-authoritarianism and a penchant for the underdog and the disenfranchised...

Michael:

My anti-authoritarianism has many sources.

I grew up having witnessed the likes of Mussolini, Tojo, Stalin and Germany's big three: Hitler, Goering and Goebbels. We were all taught that we should do what our conscience dictates, not just to "follow orders."

My own culture changed from underdog to overdog during my lifetime. I did not. "Power corrupts, and absolute power corrupts absolutely." When did ambition stop being a sin and start being a virtue? When was waterboarding transformed from a crime into a standard operating procedure in the United States? When did the United States stop being in favor of underdogs and became the overdog of the entire world?

I remember when only whites played basketball and when the color barrier was starting to go down in baseball, and when Alabama first let blacks play college football

Our educational system is discriminatory, with very little media reporting, very little legal action, very little to prevent the rich from having a rich school system and the poor from

having a poor school system.

For example:

Just look at the top high schools in the U.S. and you will find four of them packed into a very small area around Bellvue, Washington, not some other area with educational prestige, such as the Boston area. You'll figure out why if you think about it in terms of where the richest person in the U.S. lives.

Even when I was growing up less than an hour's drive from there, I was the kind of person who would spend Friday night with the richest of the students in my school and Saturday night with the poorest. I never thought about it even once, until people pointed out to me that it just was not done. . .but my response was that no one can tell me whom I can associate with, period. I grew up in all white neighborhood and when the first black kid came to my junior high school, I played basketball, not terribly well, but I did, just to break the race barrier. I can tell you I got some serious flak for doing that, too.

I just believed that everyone should get an equal chance to do whatever it was that they chose to do. I'm sure some of this had something to do with being a little brother: always having to compete with someone who is bigger, faster, stronger, but I felt a person just had to play the cards they were dealt, and do the best they could with what they had.

Still, it doesn't explain why so many of the upper crust try so hard to do all they can to keep everyone else from catching up. Fear. That's what it is, nothing more. The upper crust is afraid that if the rest of the world gets a chance, many will just pass them by. And then there's the resentment that the underprivileged and the disenfranchised all over the world feel and that cannot be done away with, no matter how many new opportunities to compete and relocate they receive.

And that brings us back to education and literacy, my two major career goals for going on 38 years. Education is the doorway that leads to everything else. To me, it is education - not money - that makes me at home around the world. And it is education that the upper crust tries so hard to keep from the lower crust. I'm not sure how many people realize this, but the upper crust actually have CLASSES on how to intimidate people with the right handshakes, eye contact, clothing, postures, word choices, etc.

I am trying to give that same power to anyone who wants it, simply by a real attempt at "universal education" that goes beyond teaching to local kids the local mores of their society, but includes a world view, capable of allowing them entrance into any society. Screw games, and gamesmanship, and "The Skull and Bones" of our society. If you don't play those games with them, they can't lord it over you as has been their plan all along. Not succumbing to peer pressures gives you a power that scares those insiders to death simply because being an insider does not do them one damn bit of good if others aren't playing by the rules of the same game.

I have never believed in education as a competition. It's all out there, all you have to do is go get it. My mother went through all sorts of machinations to get Princeton to do me the honor of allowing me to go to school there. The truth was that I just wasn't interested in going to school in a place where those ideas/ideals of competitive education were so strong. I just

wanted to learn the substance and had no interest in the social networking aspects of school, as I never planned to get into any of that insider game playing that seems to rule the world.

Do you know that 90% of all jobs are filled by insiders who do not get in through the normal interview process, but are friends of friends? This is something the insiders know from the very beginning, but I said that I was not interested in getting a job through connections but that I wanted a job where my real performance was the most important thing. These insiders are responsible for sinking of our "unsinkable" society, corporations, and global finance. This is what happens when education becomes secondary and the networked social system becomes primary! It's what has happened to every aristocracy throughout history, and there is no avoiding it.

Education is the foundation of all success. Literacy is the foundation of education. My chosen career has been to provide the tools to combat illiteracy and ignorance by promoting literacy and education on a totally free basis so that anyone and everyone will be able to teach themselves to read, and then read all they want, without any charge whatsoever. Now THAT IS a level playing field that should cause some quaking in the boots of the insiders who fear the energy of those who have been kept out of the game for our entire history.

I have always rooted for the outsider, the underdog, and ebooks should afford them a fighting chance to go toe to toe with kids who have huge school libraries to work with. To this day, I'm always outside the system rooting for those with a serious deficit in a universal educational opportunity. I want equal chances, to the extent possible, for a truly "universal education." I do all this in spite of "the trickle down theory" of education, or of economics.

Project Gutenberg is "the trickle up theory" of education. You see, these ebooks won't do anyone any good unless they actually READ THEM. Otherwise they have no value at all as they can't really be sold for money. The real power of ebooks is in the mind, and only in the mind, not from the old fashioned perspective of the almighty dollar.

When Captain Picard, in my favorite Star Trek quotation, was asked by a zillionaire after being told that money is no longer in use: "Then what do you invest in?", he answered very quietly and powerfully: "We invest in. . .ourselves."

Just wait and see. . .OH YES. . .just wait and see when the rest of the world, over the horizon and out of sight, comes roaring up at you and a new generation of nobodies reads better than you do, reads more than you do and leaves you in the dust.

Fair play? Better get ready to play hard! Those who never got to play before. . .they play the hardest!!!

Sam:

The Internet in general and e-documents (such as e-books) in particular have the potential to revolutionize the methods and means of production in modern society. Would you care to comment?

Michael:

The Gutenberg Press was the very first example of "Mass Production." Project Gutenberg was the very first example of "Neo-Mass Production." The Gutenberg Press was the first step in "The Industrial Revolution" and it made several important contributions to it. First and foremost was the conception and implementation of the very concept of Mass Production. the Gutenberg Press was the first "Assembly Line" in which teams of workers, working in unison, produced as many books in one day as a scriptorium, full of monks and scribes, produced in an entire year.

In addition to that, the workers did not have to hail from the most educated elite, the class of those who could read and write perfectly. People of moderate abilities could out-perform entire collectives of elitist, and very expensive, laborers.

The Gutenberg Press was also the first example of "interchangeable parts," as any letter could be exchanged with any other without upsetting the rest of the page layout. We also tend to forget Gutenberg's contributions to metallurgy and the compound leverage used to operate the machine.

Each of these features, together or separately, have created changes - huge changes - in the world that followed, changes without which our civilization could not have arisen. Our Middle Class could not have come to exist as they would still have been illiterate and uneducated. The Scientific Revolution could not have taken place without having been preceded by a revolution in literacy and education that gave rise to a class of people who could carry on the scientific conversation.

The Industrial Revolution itself, could not have taken place without the concepts of "Mass Production," "interchangeable parts", or "assembly line labor," not to mention improvements in metallurgy with the final addition of compound leverage to combine all these powerful and necessary elements into a single machinery.

In much the same way the Project Gutenberg volunteers have created the first and second generations of ebooks, with constant improvements introduced with the help of readers and new proofreaders, and programs written to ferret out potential errors without human intervention. The Project Gutenberg library is updated with corrected editions hundreds, perhaps thousands of times, every single year.

You would not find this kind of commitment among traditional publishers of paper editions. I read editions created today of books I first read 50 years ago and I see the same errors I saw back then. This is one advantage of volunteer labor, we do the work because we love it, not because it is a paid career with our remuneration linked to cutting corners.

With these constant improvements, ebooks will eventually surpass paper in all aspects: error correction, cost/benefit ratio, space utilization, ease of looking up quotations and copying them or sending them, and, I hope, a host of other benefits we haven't even seen yet, such as being able to find similar quotations and ideas in a million other books.

Before The Gutenberg Press every manmade item was made by hand and required huge amounts of time to create. Prior to Project Gutenberg, books were created one at a time, albeit

on what was thought of at the time as high-speed printing presses. Yet, compared to the speed of copying ebooks, these were laggards. This is particularly true if one takes into account the time required to transport books from place to place, not to mention the vast warehouses maintained, the large stores, etc.

The Gutenberg Press will create more books in 50 years than all the books in the annals of Mankind. Similarly, the ebook process has created more ebooks in 50 years, as we speak, than all the paper books that ever existed in all of history.

The average person owns less than 100 printed books. A bookshelf containing 100 paper tomes is still somewhat of an impressive sight in any home. Only professors and such are likely to have more p-books. Yet, anyone who spends c. \$50 today on a 32 gigabyte flash drive can WEAR an entire library of 30,000 non-compressed books around his neck, or carry it on his keychain, equal to the average number of books in a typical U.S library (or, with compression, the equivalent of 2.5 U.S. libraries).

The fact that anyone can own thousands, or even millions of eBooks, is certainly a breakthrough, a "Neo-Industrial Revolution".

There are 10 million ebooks available now:

100,000 from Project Gutenberg
1,250,000 from Internet Archive
500,000 from World Public Library [\$8.95 per year membership]
7,500,000 from Google

That's a total of 9,350,000 not counting Gallica or any of the other national efforts. Additionally, there are hundreds or thousands of sites around the world making available ebooks "too cheap to meter", or absolutely free. There are of about 25 million books in the public domain that are candidates for inclusion in such electronic libraries.

Even a mere 10 million ebooks, translated, by humans or computers or both into just 40% of the 250 extant languages with over a million speakers, yield a total ONE BILLION eBooks!!! So, obviously, we have the potential to generate more ebooks than all of the paper books that have ever existed.

What are the implications?

Continuing the comparison to the Gutenberg Press, the first change will be an abrupt rise in the rates of literacy and education among those previously deprived and underprivileged. Just as The Gutenberg Press took literacy and education out of the hands of the old elitist class and into the newly emerging "Middle Class," so too will ebooks take literacy and education out of the hands of the "developed" world and put them into the hands of anyone with an access to a phone that is text capable.

Twice as many people own such devices as do not, and the number of those without such devices is rapidly shrinking to a small minority. By 2020 nearly everyone who wants a cellphone will have one.

People will learn to read from their cellphone as it voice-renders what is on the screen. Eventually people will be literate without anyone having had to teach them to read.

Moreover, the example of Project Gutenberg giving away an assortment of books and other materials free of charge is already being emulated by an entire generation of other sites. Why do people give things away? For some it amounts to proselytizing, just like the Bibles given away by The Gideons. Others satisfy their desire to share their favorite books, art, or music, or anything else than can be digitized. Some simply use it as a digital extension of the "vanity press".

But computer files are not the only objects that are subject to the Neo-Industrial Revolution.

The media coverage is sparse, but we have had 3-D printer capabilities for 20 years now that allow computers to "print" objects, real physical objects you can hold in your hand. Fifteen years ago I made a rather secret pilgrimage to one of these places, traveling hundreds of miles, just to see such a printer in action and to obtain a sample of such an object.

Today, there are thousands of such locations, and the equipment can be had for the price of the early IBM-AT computers, and run on your desktop. There are all sorts of 3-D printers: from those that cut out cardboard for assembly to those that create the full object all on their own.

The final example is the "RepRap" machines capable of making copies of themselves, subject only to the availability of cheap, off the shelf raw materials.

When computers are able to spew out physical objects, certain types of stores will become obsolete and certain manufacturers will be rendered non-competitive. MIT (who placed all their textbooks online) made what they call a "FabLab" or "Fabrication Laboratory" and sent out the first few of them to see how people would use them. These FabLabs have the capability of making extremely intricate and durable parts from metals to circuit boards to all sorts of plastic models, even in customized colors.

In places like Holland, where so many people ride bicycles, they could make bicycle parts. In places such as deep in Africa where spare parts aren't available as they are in the more "developed" regions, people could print parts for daily conveniences, such as an old, no longer serviced washing machine. In addition MIT is putting one FabLab in Providence, Rhode Island to see what will happen in a more developed locale.

Back to ebooks. For now, we are still relying on the private sector", both voluntary and commercial, to produce them. It is ironic that this crucial task has ended up falling into the hands of a bunch of underfunded volunteers and has not become a national priority, replete with the kind of budgets and logistical support that countries can provide.

When I first invented ebooks back in 1971, I was sure that it would be an idea that will be picked up by all the major powers, public and private, for the instant advancement of civilization, just as "The Gutenberg Press" was picked up by everyone around the world in no time at all. It never occurred to me that Project Gutenberg, or myself, could still be seriously involved in the creation and distribution of ebooks at such a late stage as this.

My dream is to have 10 million free ebooks translated into 100 languages, so as to create an electronic library of ONE BILLION eBooks that, anyone and everyone can have unbridled access to.

Even the longest journey starts with but a single step. My single step, the step that started ebooks, Project Gutenberg and my entire career, took place on the night of July 4, 1971. On July 4 of this year I hope to personally offer you TWO MILLION ebooks at this year's World eBook Fair at <http://www.worldbookfair.org>

The E-Books Evangelist

Interview with Glenn Sanders

Also published by United Press International (UPI)

Q. Why electronic publishing?

A. I was first introduced to electronic publishing on the Internet in the late 1980s and became intrigued by the power of this revolutionary development. Then, when Mosaic released the first Web browser in 1992, the Internet finally had a visual aspect. Suddenly, the vast Internet was transformed from a dimly lit warehouse for data storage and exchange, to a visible library and gallery for information. I was hooked.

In 1994, while teaching at a university in Japan, I created what was probably one of the first (if not the first) paperless reading classes. I taught myself HTML and built 26 Web-based reading lessons for the "comparative cultures" course I taught there. The reading material in each lesson linked to related websites and information. Instructions were included for the exercises, which usually included finding information or doing research somewhere on the Web. Students emailed their results to me, and I emailed feedback and grades to them. Students were not required to come to class, but were required to turn in their "class work" results to me by Friday evening.

Since then, I have created numerous Web sites, published a number of electronic & print books, and hundreds of articles. In the late 1990's I saw the confluence of three factors that foretold the electronic publishing and e-book revolution. The first was the imminent ubiquity of the Internet. Next, was the growing need for mobile access to information, and the availability of so much data in the digital domain.

Finally, I could see the day when technology would catch up with my vision of a portable information tablet. As of summer 2002, I am still waiting, but technological developments are rapidly nearing the time, probably somewhere around 2005, when affordable, portable, readable, wireless reading devices will reach the mass markets. The company where I work, Rolltronics Corporation, is developing thin, flexible electronics technology that will enable many of these devices in the future.

While living in Japan and working at Fujitsu, Inc., I founded eBookNet and began toying with the design of a next-generation information display device. In 1998, I founded eBookNet.com, which became a renowned Web site that provided news and community services for the e-book and e-publishing industry for several years.

In 1999, NuvoMedia (the company that pioneered the current generation of electronic reading devices with its "Rocket eBook" in 1998) acquired eBookNet and hired me. NuvoMedia supported eBookNet until April 2001.

A few months later, with the support of the Rolltronics Foundation, Wade Roush (former managing editor of eBookNet) and I founded the Electronic Publishing Resource Center

(EPRC), an industry-sponsored, non-profit organization, and launched eBookWeb.org on the 4th of July 2001.

I see myself as an e-book evangelist, seeking to inform and educate the world about electronic publishing. My vision is of a world where information, entertainment, and books are readily available to professionals, researchers, students, and readers everywhere. So, even though I work full time for Rolltronics doing business development, I continue my daily efforts to help build the e-Book industry through eBookWeb.org. The Website now leads in providing news, information, resources, and community services to the e-media industries.

Q. This has been a bad year for e-publishing. Leading brands vanished, industry leaders retreated, technology gurus bemoaned yet another missed prognosis - that e-books will dethrone print books. What went wrong?

A. Ever since I first realized the need for portable information devices, my belief in the future of e-books has never been shaken. Despite the fact that e-book reality replaced hype in 2000, and 2001 brought a temporary cyclical economic downturn, I firmly believe and know that e-books and e-publishing, or more generally portable information devices, will play a primary role in the way that people write, create, design, read, learn, access news and information, communicate, interact, travel, enjoy art and entertainment, and experience their world.

It is just taking longer to get there than many had hoped around the turn of the century. There are still several factors that need to come together to make e-books a reality. The hardware is still not there. We need affordable, light, thin, readable displays with battery life measured in days or weeks, not hours. To be truly useful and portable, the devices need to be wireless and perhaps with a backup cellular connection for remote locales. Next, there needs to be much more content available for distribution to these devices. Secure but accessible infrastructure and standards need to be in place for mass-market appeal. Then, adoption by libraries and educational institutions will spread the use of e-books at the grassroots level.

Q. Questions of device compatibility and standards have plagued the industry from its inception. Will we end up with an oligopoly of 2-3 formats and 2-3 corresponding readers, or do you have a different take on the industry's future?

A. We may be destined to have several formats and platforms, each of which is used for certain applications and types of content. The reason is that there are basically four major players, each with their own plan to dominate the e-Publishing market.

Despite the fact that, in my opinion, Adobe's PDF is lacking as an e-Book format, there are hundreds of millions of documents in PDF in publishing companies, governments, corporations, and schools. These will not be replaced instantly, even if a unified format were agreed upon.

Then there is Microsoft, the 800-pound gorilla, who is slowly and silently insinuating their reading platform into their software and Windows operating system. The interoperability of MS Reader software with MS Office products will make it possible for many millions of documents to be converted to MS Reader format.

Of course, there will need to be a portable device to display all those e-documents. Despite the fact that many Pocket PCs have been sold, they don't seem to be a major factor in e-content sales. Now the timing of Microsoft's big push for the MS tablet PC begins to make more sense.

The Gemstar format has an established base of customers and actual dedicated devices, the Rocket eBook and REB1100 and REB1200s. Gemstar's format actually has a lot of popular content going for it, and their displays are much better than the average computer display. Therefore they are more suitable for portable reading.

And not surprisingly, the largest sales of electronic content are going to the Palm Pilot compatible devices. The established base of many millions of "Palm OS" customers has been buying hundreds of thousands of e-books each year, and the e-content sales are growing steadily.

How to unify these four goliaths? The Open eBook Forum's standard is good for the formatting of the original document. Microsoft and Gemstar adhere to the OeBF standard. But each company has its own way of converting and displaying the OeBF format in its device or software. So what is the answer? The only way to rectify all of these heavyweight solutions is to create a unified standard for displaying electronic content that is the same across all platforms. Is this possible? That is a question better answered by the experts at the OeBF...

Q. Some analysts blame the recent bloodbath on a dearth of good content and wrong pricing. They derisively equate e-publishing with vanity publishing. Do you find these criticisms correct?

A. The amount of content is growing slowly but steadily. There are two major problems that contribute to the relative dearth of titles becoming available. One is that extra negotiations and agreements are necessary to publish e-books, or to price them differently from "p-books." Another is that since the market still isn't there, many publishers do not have the resources, or haven't budgeted enough money to aggressively convert content. And many veteran publishers still produce the final version of a book in a format that is not easy to convert for electronic publication.

As far as vanity publishing goes, that is not defined by the medium. Of course electronic publishing makes it easier to distribute "vanity-published" works. And it is easier to become self-published. And there are a few vanity publishers out there, but they usually don't last long. Still, most publishers and electronic publishers strive to produce top quality titles. They know that this is the only long-term viable business model. They screen and edit the titles that they publish. They actively promote their authors' works. In this sense, a publisher's name brand will become much more important to customers than is presently the case.

Q. Traditional print publishers treat e-books (the content, not the devices) as electronic facsimiles of the print editions. Can e-books offer a different reading experience? In what way are they different to print books?

A. E-books that are nothing more than electronic copies of the print version offer only portability and access as advantages. Of course e-books can be searched and annotated. The vision impaired can read with large fonts. Students can look up words in a built-in dictionary.

But, similar to popular movie DVDs that include many extras, e-books should really take advantage of the flexibility and capacity of the electronic medium. Publishers could include the author's notes, rough sketches, background, audio or video from the author or the scene of the books. Reference works should be electronically updateable via the Internet. Book club members might be able to send each other their annotations and comments. Readers might send feedback to the author and/or publisher. Fans might write and distribute alternate endings, or add characters or scenes.

Q. E-publishing is at the nexus of sea changes in copyright laws. Does e-publishing encourage piracy? Have publishers gone overboard in an effort to preserve their intellectual property rights? Do you foresee new models of revenues and royalties and a novel definition of intellectual property?

A. E-publishing does not encourage piracy, but being in electronic format, it certainly becomes susceptible to the same kind of piracy that all other kinds of e-content experience. A number of models, or rather experiments, are being tried with respect to the level of control of intellectual property and the associated financial model. So far, there has not been a clear answer as to which experiment yields the best results.

One factor is that the market is still in its infancy and therefore is in a state of flux. The continuum runs from strict and limited control offered by digital rights management systems, to free e-content (hopefully) supported by either stimulating sales of print books, or advertisements. In the middle are publishers who provide limited security, or those who use no security and depend on the basic honesty of most people. As the market grows, we will discover which models work best in which situations for which types of content.

Q. E-books were supposed to bring about disintermediation and foster a direct dialog between author and readership. Have they succeeded? What is the future of content brokers, such as publishers and record companies?

A. Yes, there is an enhanced dialog between author and audience. On eBookWeb.org, we provide space for authors to have a personal page. These are some of the most popular pages on the site. On other Websites and through the publications themselves, authors are coming in closer digital contact with their readers through email or other forms of dialog. For low volumes of messages, this is a good thing. But top-selling writers could not handle email from thousands of dedicated fans. Even in an electronic world, it is still true that as one becomes more popular, one has to become less and less accessible in order to conserve one's time.

Yes, it is also much easier to become self-published electronically. However, there is usually a huge difference between simply being published, and actually reaching a large audience and reaping significant sales of your title. The Web continues to grow exponentially, but our time and attention span remain limited. These two opposing dynamics mean that we are forced to narrow our attention to a relatively few reliable content providers, representing an ever smaller proportion of the total content available.

How can an author be heard above the noise? Get a publisher who will promote your work. But before that, get an editor or publisher who will help you polish your work until it shines brightly enough to gain popularity once it secures the attention of your audience. The dynamics and demands of the free market, and the reasons for having publishing companies do not disappear on the Internet. In fact, they may become more important as the amount of content and choices continues to grow.

One important change that I do foresee is that small, independent niche publishers will make a resurgence due to the electronic medium. This is definitely a good thing for readers. Independent publishers who build a reputation for unique, quality content, will develop a following of faithful customers over time.

Q. Some marketing pundits believe in viral or buzz marketing. They advocate giving away free content to generate "buzz". They believe that sales will follow. Do you subscribe to this view?

A. This relates to the question of copyright laws and which model is best for a particular situation. It also has to do with previous models on the Web. If the goal is to gain an audience and fame, then giving it away to hopefully millions of people is a good idea. The popular dynamic of the Internet is to build a massive audience by giving away something of value. Then, one slowly begins to charge for some content or service, while still providing something for free, to continue to attract a large following.

The results of the late 1990s indicate a mixed success, probably due in part to the origins of the Internet, where everything was free. The expectation was that if it was on the Net, it was free. The beginnings of commercialism on the Net in the early 1990's were met with vehement resistance from the "old timers" who strongly opposed the commercialization of their beloved network. Of course, a number of companies such as eBay, Amazon, and Yahoo, attracted and kept a large audience. But only a few are truly profitable today.

If the goal is to make maximum profit from each unit of content that is downloaded, then one must charge money, or sell advertisements. Unfortunately, the revenues from advertising on the Net have fallen dramatically in the last few years. So if you put a price tag on your content, how much should you charge? Most independent electronic publishers charge a few dollars for their titles, anywhere from \$1 each to about \$5 or \$7 per e-book. These relatively low prices reflect the desire to attract a large pool of customers. They also reflect the belief common among readers that since it is electronic and not print content, the price should be lower. They feel that without the cost of printing and transporting books, the publisher should set a lower price...

Q. As you see it, is the Internet merely another content distribution channel or is there more to it than this? The hype of synergy and collapsing barriers to entry has largely evaporated together with the fortunes of the likes of AOL Time Warner. Is the Internet a revolution - or barely an evolution?

A. In the beginning, the Internet was a revolution. Email brought the people of our Earth closer together. The Net enabled telecommuting and now as much as 10% of the world works at home via computer and Internet. The Internet makes it possible for artists to publish their own books, music, videos and Websites. Video conferencing has enabled conversations without limitations of space. The Internet has made vast amounts of information available to students and researchers at the click of the mouse. The 24/7 access and ease of ordering products has stimulated online commerce and sales at retail stores.

But it is not a cure-all. And, now that the Net is part of our everyday lives, it is subject to the same cycles of media hype, as well as social, emotional, and business factors. Things will never be the same, and the changes have just begun. The present generation has never known a world without computers. When they reach working age, they will be much more inclined to use the Net for a majority of their reading and entertainment needs. Then, e-books will truly take hold and become ubiquitous. Between now and then, we have work to do, building the foundation of this remarkable industry.

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Germany's Copyright Levy

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Based on the recommendation of its Patent Office and following fierce lobbying by VG Wort, an association of German composers, authors and publishers, Germany is poised to enforce a three years old law and impose a copyright levy of \$13 plus 16 percent in value added tax per new computer sold in the country.

The money will be used to reimburse copyright holders - artists, performers, recording companies, publishers and movie studios - for unauthorized copying thought to adversely weigh on sales.

This is the nonbinding outcome of a one year mediation effort by the Patent Office between VG Wort, Fujitsu Siemens Computers, Germany's largest computer manufacturer and other makers. VG Wort initially sought a levy of \$33 per unit sold.

But Fujitsu and the German Association for Information Technology, Telecommunications and New Media (Bitkom) - including Microsoft, IBM, Alcatel, Nokia, Siemens and 1300 other member firms - intend to challenge even the more modest fee in court.

They claim that it will add close to \$80 million to the cost of purchasing computers without conferring real benefits on the levy's intended beneficiaries. They repeated similar assertions in a letter they have recently dispatched to the European Commission.

The problems of peer-to-peer file sharing, file swapping, the cracking and hacking of software, music and, lately, even e-books - are serious. Bundesverband Phono, Germany's recording industry trade association, reported that music sales plunged for the fifth consecutive year - this time, by more than by 11 percent.

According to figures offered by the, admittedly biased, group, 55 percent of the 486 million blank CDs sold in Germany last year - c. 267 million - were used for illicit purposes. For every "legal" music CD sold - there are 1.7 "illegal" ones.

Efforts by the industries effected are underway to extend the levy to computer peripherals and, where not yet implemented, photocopying machines. Similar charges are applied today by many European countries to other types of equipment: tape recorders, photocopiers, video-cassettes and scanners, for instance. Blank magnetic and optical media, especially recordable CDs, are - or were - taxed in more than 40 countries, including Canada and the United States.

Nor is Germany alone in this attempt to ameliorate the pernicious effects of piracy by taxing the hardware used to affect it.

The European Union's Directive on the Harmonisation of Certain Aspects of Copyright and Related Rights in the Information Society, passed in 2001, is strenuous, though not

prescriptive. It demands that member states ensure "fair compensation" to copyright holders for copies made by means of digital equipment - but fails to specify or proscribe how. It has been incorporated into local law only by Greece and Denmark hitherto.

In Austria, Literar-Mechana, the copyright fees collection agency, negotiated with hardware manufacturers and importers the introduction of a levy on personal computers and printers. The Swiss are pushing through an amendment to the copyright law to collect a levy on PCs sold within their territory. The Belgian, Finnish, Spanish and French authorities are still debating the issue. So do Luxemburg and Norway.

According to Wired, the Canadian Private Copying Collective, the music industry trade group, has proposed "new levies to be applied to any device that can store music, such as removable hard drives, recordable DVDs, Compact Flash memory cards and MP3 players."

Precedent is hardly encouraging.

The aforementioned Canadian Collective has yet to distribute to its members even one tax dollar of the tens of millions it inexplicably hoards. In Greece, a 2 percent levy on all manner of computer equipment provoked a hail of legal challenges, still to be sorted out in the courts. The amounts collected hardly cover the government's legal expenses hitherto.

The United Kingdom, Ireland, Sweden and Denmark are against the levy, claiming, correctly, that hardware is used for purposes other than pilfering intellectual property digitally. The Italians, Portuguese and Dutch haven't even considered the option.

Hardware manufacturers are livid. In a buyers' market, their razor-thin profit margins on the commoditized goods they are peddling are bound to be erased by a copyright levy. The European Information and Communications Trade Association (EICTA) implausibly threatens to pass on such extra costs to consumers and recommends to stick to technological means of prevention, collectively known as Digital Rights Management (DRM) systems, or to novel CD copy protection measures.

Moreover, the fuzzy nature of the surcharge leaves a lot to be desired. Peter Suber, a prominent advocate of free online scholarship, analyzed the various post-levy scenarios in his FOS blog:

"What I can't tell is whether the copyright levy on hardware will come with universal permission to copy. If so, that's a big gain for a small cost ... If the levy does not imply permission to copy, then which copying does it cover? If it covers copying without prior permission, then users will simply stop asking for permission, and convert all copying to pre-paid copying. If it covers copying without pre-payment, then that begs the question: what does the levy pre-pay? (It's not clear) how the plan would continue to distinguish authorized from unauthorized copying."

Yet, at this stage, it is difficult to see how to avoid the kind of rough justice meted out by Germany. Even the most advanced DRM systems lack a reliable model of remunerating copyright holders. Hence the conspicuous absence of DRM in the EU's Copyright Directive.

Suber raises some practical concerns, though he broadly supports a copyright levy on hardware:

"To make the system fair, we would need reasonably accurate measurements of the amount of copying. Otherwise we wouldn't know whether to bump up the price of a computer \$35 or \$350 or whether to give Elsevier 1% or 10%. Download counters wouldn't catch the peer-to-peer traffic. So would you put up with packet sniffers or other eavesdropping technologies to take random samples of the copy traffic, as long as your identity was not recorded?"

Even what constitutes copyrighted work is not entirely clear. The European Court of Justice heard arguments last week in a case pitting two American companies, IMS Health and NDCHealth, against each other. IMS Health vends aggregated German data pertaining to the sales of pharmaceuticals.

NDCHealth tried to emulate an organizational element of the IMS Health database. The Court is faced with seemingly intractable questions: Can IMS Health be compelled to license its database to a potential competitor? Is the structure of the database - the way Germany is divided to 1860 reporting zones - protected in any way?

In essence, copyright is a temporary monopoly on creative work granted to the authors, publishers and distributors of such products. It is intended to compensate them for their efforts and to encourage them to continue to originate in future. Yet, the disintermediation brought on by digital technologies threatens to link author and public directly, cutting out traditional content brokers such as record companies or publishers.

This is the crux of the battle royal. The middlemen are attempting - in vain - to sustain their dying and increasingly parasitic industries and refusing to adapt and re-invent themselves. Everyone else watches in amazement and dismay the consequences of this grand folly: innovation is thwarted, consumers penalized, access to works of art, literature and research constrained.

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The Future of Online Reference

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These are momentous times in the digital content industry. Within the past 60 days, Barnes and Noble withdrew from the e-books business, peddling its electronic publishing house to iUniverse and terminating the sale of digital titles from its barnesandnoble.com Web site. It then proceeded to take private its publicly listed online arm.

To the consternation of many authors, Amazon, its chief Internet competitor, introduced a "search inside the book" feature with an initial database of 120,000 titles. It was preceded by eBooks.com's less comprehensive but otherwise similar search engine.

Project Gutenberg - the pioneering and largest depository of free, mostly "plain-vanilla" (text only) e-books - added the 10,000-th title to its unsurpassed collection. In the meantime, e-book aggregators, such as blackmask.com, now proffer tens of thousands of free titles for download in up to 8 file formats. Even Microsoft has spent the last few months offering a free weekly selection of 3 commercial titles each, exclusively readable on its MS-Reader application.

Buffeted by these winds of e-commerce, vendors of online reference - textbooks, dictionaries, and encyclopedias - are eyeing the market warily and wearily.

Patrick Spain is Chairman and CEO of Alacritude, publisher of eLibrary and Encyclopedia.com. eLibrary is a digital archive of more than 13 million documents culled from over 2000 publications. It includes newswires, newspapers, magazines, journals, transcripts, photographs, maps and books - major works of literature, art, and reference.

Troy Williams founded Questia in 1998 and has served as its President & CEO ever since. Questia is a massive online library of over 400,000 books, journals, and articles organized into more than 4000 research topics. It caters mainly to students and offers cool features such as online annotation, page printing for free, and bibliography generator.

Tom Panelas is the Director of Corporate Communications of the Encyclopaedia Britannica - the Rolls Royce of reference works. It has been available online for a few years now - the 32 volumes, an interactive atlas, a student's version, a links directory, and a topical compilation of thousands of magazine articles and multimedia. The Britannica has alternated between revenue models: subscriptions only, then free access with advertising, and back to subscriptions.

First I asked these pivotal industry players how they saw the future of paid access to online reference works, textbooks, and scholarly material?

Spain: Online reference is being consumerized or "Wal-Marted." That which used to be delivered to a limited audience of thousands (librarians and large companies) is now available to a huge audience in the tens, maybe hundreds, of millions. This affects prices, business models, and the very structure of the industry. Many generic reference materials (encyclopedias, dictionaries, thesauri, etc.) are available for free and will remain so for the indefinite future. They serve either to market print and other electronic products or they generate advertising. Good models do both. Some very specialized titles with limited audiences may continue to be able to charge. But most cannot. This means that people won't pay or won't pay much for "content" - but they will pay small amounts for services that help them find, organize and publish answers to their questions especially when those relate to wealth (finance and career), health, and certain types of entertainment.

Panelas: We've seen in the past three years a reaction to the meme of the middle- and late-1990s, that all information on the Internet has to be free and that people won't pay for it. For a few years it held somewhat true, but as the Internet population became more experienced, their interests and preferences inevitably changed.

People who were using free information on the Web eventually became fed up. Many of the sites they used disappeared because they had no self-sustaining economic model. Much of the information online was worthless. It became difficult to tell whether information on the Web was reliable.

As a result we've seen a growing realization among Internet users that not all types of information are equal, that authoritative information is valuable, somewhat rare, costs money to create, and for these reasons it's worth paying for. Many more people are willing to pay for high-quality information on the Internet than four years ago, especially since the price of online reference is at a nadir. We see online as the area that will grow the fastest, as far as the vending of reference goes. Many people will subscribe through third-party organizations such as Internet service providers with whom we have established relationships. Subscribers to SBC Yahoo! DSL service, for example, can choose a subscription to Britannica.com along with their service. In the future, publishers will probably provide one kind of service to such third-party distributors and create others, with better, premium offerings, for customers who pay them directly, since there's more revenue in such subscriptions.

Increasingly, information Web sites will "aggregate" content - that is, incorporate sources that go well together but could not be integrated before the Internet. Britannica.com, for example, includes three encyclopedias, magazines and journals, a guide to the best Web sites on various subjects, and other information. Thus sources that were previously spread throughout the library stacks, requiring the wearing out of much shoe leather to bring them together, now come to rest in one place, on the screen of your computer. This trend will no doubt continue.

Williams: Online reference resources, i.e., eLibraries, will become an indispensable part of education over the next 20 years. There are a number of discernible trends: first, electronic access will be the primary method of accessing scholarly information within a decade or two. It removes the need to be near a physical copy of the title one needs to access, it resolves

multiple-user issues, and greatly increases the ability of a researcher to find what he or she is looking for.

Second, online access to scholarly information is an integral part of the trend towards online and distance education. The undergraduate population is diversifying and now includes students enrolled in distance learning programs, rural students without physical access to an adequate library, and older, community college students who work or have family obligations that prevent them from spending time in their campus library.

Third, the Internet has engendered a powerful trend toward personalization. Elibraries such as Questia enables its users to personalize their library. Notes and highlights in various colors in each book and article can be saved for future reference. Documents, “virtual bookshelves” and even previous term papers and bibliographies can be saved online and organized in various folders.

Fourth, people increasingly expect complete mobility. ELibraries such as Questia enables researchers to access their personalized copies of books and journals as well as old term papers and current work-in-progress from anywhere.

Q: Who are Alacritude's main competitors?

Spain: Alacritude competes with Google on the low end and Nexis on the high end. Google is in the throes of creating a marketplace and, only incidentally, allows its users to find knowledge. Nexis provides very specialized (and expensive) information services to enterprises. Alacritude's eLibrary helps our users to locate pretty good answers inexpensively. We are different in that we are evolving our service to tightly integrate tools and content and to let our customers search anywhere, even other services, from a single easy-to-use online research interface.

Q. Questia competes with the likes of NetLibrary and Alacritude's eLibrary. What differentiates it from its competitors?

Williams: Questia's and netLibrary's collections are very different. The Questia collection was developed specifically for undergraduate research in the humanities and social sciences. A staff of academic librarians determined which books are most important and useful for undergraduate coursework in these fields. Digital copyrights were negotiated with the publishers or author of the titles. Many publishers feared e-books and digital copies of their titles would cannibalize their hard copy print sales. Making them understand the benefits of placing their titles in the Questia online library was an education process.

Having obtained the digital copyrights we digitized the books since most of the content was unavailable in electronic format. The resultant book collection contains the complete text and original pagination of more than 45,000 books from the 19th through the 21st centuries. Our goal is to build a collection that includes important works from all time periods and provides our users with a full range of resources just as any quality library does. We want to build a true research collection, not just a compilation of recent publications. The entire Questia collection has more than 400,000 titles – including 360,000 journal, magazine, and newspaper articles.

In contrast, the 37,000-title netLibrary collection was developed by incorporating books that were already available in electronic formats. As a result, it lacks many important retrospective titles. Additionally, netLibrary was developed with the view of selling individual titles. Consequently, although it has titles in a broader range of subjects than Questia, it was not developed as a “collection.” Questia specifically excludes titles in the natural sciences, technical and medical fields. We have a strong focus on “collection development” so that we can support rigorous academic research in thousands of social science and humanities specific topic areas.

A second important point of difference is the business model. Questia's is direct to the consumer. Individuals purchase subscriptions. We do not sell institutional site licenses to colleges or universities. NetLibrary sells to institutions. Public, private, and academic libraries, or consortia thereof, buy specific titles that it vends, similar to the way they purchase print copies.

Third, with Questia, there is no limit on the number of simultaneous users for any given book or article. No book is ever checked out or unavailable to a subscriber. With NetLibrary, the number of users is restricted to the number of electronic copies of a book purchased by a library.

The advantage of netLibrary is that it significantly reduces the costs of owning and maintaining books, i.e. the overhead associated with shelf-space such as lighting, the costs of checking books in and out manually, reshelving them, rebinding them, lost and misplaced copies, etc.

Lastly, the research environment is very different. Questia provides a set of tools that enable a user to do better research and organize their work - to highlight, jot down notes or bookmark a page, look up items in a dictionary, encyclopedia, and thesaurus, and create properly formatted citations and bibliographies in MLA, APA, ASA, Chicago, and Turabian styles. All these can be filed in a user's customizable personal workspace, which is akin to an online filing cabinet. Users can create multiple project folders to organize their research, “shelve” frequently accessed books or articles, and refer back to their bookshelf at any time.

NetLibrary offers four dictionaries as a reference tool but does not provide the type of customizable personal research environment that Questia does.

Alacritude's eLibrary is a subscription-based reference tool with newspapers, magazines, books, and transcripts. Their collection is not a research library but rather a compilation of recently published content on a variety of subjects. eLibrary can be used as an informational supplement. It seems to me to be more focused at the junior high school level or as an inexpensive alternative to Lexis.

Q: The Britannica has three types of products - print, online and digital-offline (CD-ROM/DVD). Do they augment each other - or cannibalize each other's sales?

Panelas: In the past decade we've seen huge increases in sales of all electronic formats at the expense of print, which has declined. The proportions have stabilized, however, and most people are choosing their medium based on the way they like to look for information. Prices of electronic encyclopedias are lower than print, but the value proposition of print is different,

and people who continue to buy print do so because they like it. Meanwhile the declining price of reference information in general has put reference works in many more homes than before. So today rather than cannibalization, there's an expansion of the overall market, with more people buying reference products than ever before and people choosing the form they prefer.

Q: *The web offers a plethora of highly authoritative information authored and released by the leading names in every field of human knowledge and endeavor. Some say that the Internet, is, in effect, an Encyclopaedia - far more detailed, far more authoritative, and far more comprehensive than any Encyclopaedia can ever hope to be. The web is also fully accessible and fully searchable. What it lacks in organization it compensates in breadth and depth and recently emergent subject portals (directories such as Google, Yahoo! or The Open Directory) have become the indices of the Internet. The aforementioned anti-competition barriers to entry are gone: web publishing is cheap and immediate. Technologies such as web communities, chat, and e-mail enable massive collaborative efforts. And, most important, the bulk of the Internet is free. Users pay only the communication costs. The long-heralded transition from free content to fee-based information may revive the fortunes of online reference vendors. But as long as the Internet - with its 2,000,000,000 visible pages (and 5 times as many pages in its databases) - is free, encyclopedias have little by way of a competitive advantage. Could you please comment on these statements?*

Spain: I agree. Still, Open Directories and free powerful search engines (which, let's remember, make their money by trying to sell you goods and services relating to the keywords used in your search) only constitute 5% (or less) of what amounts to "research." First you have to find it; we have made good progress here. Then you have to organize it; there are few good tools for this. Finally you have to publish it, likely using one of Microsoft's applications. This entire process from search results to answers delivered in publishable form remains painful and time consuming. The opportunity lies in making research as easy as search. It seems simple, but it's very hard.

Williams: The real issue here is previously published material. There is certainly a lot of information on the Internet and that is a wonderful thing. However, there is virtually no place an individual who is not part of a major college or university can go online and find the full-text of books, including contemporary and recent ones. To say that the information that is available online is equivalent to the information stored in the Library of Congress is absurd. I'm not talking only about the range of information but also about the value of the editorial process. There is clearly a huge difference between someone posting something on a website and someone rigorously researching a book for five or ten years and then submitting it to peer review and the careful attention of editors. Virtually none of the fruits of this serious research and editorial process is available on the Web. The material on the Net suffers from a chronic issue of questionable credibility and is ephemeral. The material published by leading publishers is reliable and has lasting importance.

Panelas: It simply isn't true that the Internet is an encyclopedia. It's an aggregation of information by anyone who wants to put it up there. An encyclopedia is the product of a unified idea, a single editorial intelligence. The people who create it are skilled in their craft. It seeks to cover all areas of human knowledge and to do so in a way that both gives each area its due proportion and integrates it all so the various parts work well together. It

reflects many choices that are made consciously and in a consistent way, and since it represents a summary of human knowledge rather than its sum total, the choices editors make about what to leave out are as important as the ones about what to put in.

True, there are people who are hostile to this idea, and, again, we saw some of this in the '90s enthusiasm for the Internet and the related belief that it would literally transform every aspect of life overnight. A sophisticated world such as ours, which relies on knowledge and information to function, can tolerate only so much bad information before problems arise, and we saw some of that in the early years of the Web, which is why more people today see the virtues of an encyclopedia than did a few years ago.

The collaborative possibilities of the Internet are very interesting, and we'll see in due time what their implications are for publishing. Some people are predicting that everything will be utterly transformed, but that usually doesn't happen.

Q: What are eLibrary's future plans regarding online reference?

Spain: Alacritude, through its encyclopedia.com, Researchville and eLibrary services is already addressing head on the need to create an easy to use and cost effective research service for individuals.

Q: What are the Britannica's future plans regarding online reference?

Panelas: We plan to keep improving what we offer, with new sources of information, more "non-text media," better search and navigation, and ease of use.

Q. What are Questia's future plans regarding online reference?

Williams: We are not focused on the traditional reference area. Reference books tend to be far more costly to acquire rights to. In addition, they are far more difficult to get into a web-ready format. As a result, we do not feel that the benefits warrant focusing on this area today. Our strategy is simple. We want to build a massive online library of carefully selected high-quality, full-text books.

Q. There are rumors about Questia's (lack of) financial muscle. Its future is said to be in doubt. Is there truth to it?

Questia is in the best financial position that it has ever been in. We are cash flow positive. We more than tripled revenue last year and we will nearly do so again this year. Today we have subscribers in 170 countries. In the US, we have individual subscribers on over 2,000 college and university campuses. And those are just the ones we know of. Most of our users don't give us that information. Our customer satisfaction levels are extremely high as you can see from the feedback on our site. We see the result of that high satisfaction in that once someone subscribes, typically they stay subscribed for quite a while. Any recent rumors about Questia are probably the echoes of older stories from a few years ago and would not be accurate.

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Old Reference Works Revived

There is no source of reference remotely as authoritative as the Encyclopaedia Britannica. There is no brand as venerable and as veteran as this mammoth labour of knowledge and ideas established in 1768. It numbered the likes of Einstein and Freud among its authors. Dozens of classic articles written by such luminaries are available on the Britannica's [Web Site](#) and included in its CD-ROM and DVD editions.

This is the tip of an iceberg of revival of old reference works.

The full text of the venerable 1911 edition of the Encyclopedia Britannica is now [available online](#) and is in the public domain. Regrettably, there is no CD-ROM or DVD to be had of this opus magnum written by the best minds at the turn of the 20th century. Nor can one download the Encyclopedia as separate compressed files. Additionally, the transcription is far from perfect with many an article either truncated or mysteriously divided. Still, it is a grand and welcome undertaking.

Another sorely needed contribution is the [Jewish Encyclopedia online](#). The only other project of this scope, the Encyclopedia Judaica on CD-ROM will be withdrawn from the market by January 2006 and is anyhow incompatible with any operating system later than Windows ME.

Exactly like the Britannica, the Jewish Encyclopedia was compiled at the turn of the previous century and, therefore, lacks any coverage of the important events that took place in the life of the Jewish people - from the Holocaust to the State of Israel. But, with 4000 years of history to go on, the Jewish Encyclopedia is still a vast, indispensable, and deeply researched resource. It is also better adapted to the technological constraints of the Web. Still, it, too, offers no way of acquiring the whole work: no CD-ROM or DVD, no downloadable compressed files.

By far the best among the three is the Catholic Encyclopedia. The 1904 edition of this magnificent work of reference is fully and freely [available online](#). The commercial CD-ROM includes all 11,600 articles (which I found to be surprisingly objective and free of religious bias). But both the Web site and the CD contain reams of additional material: from the writings of the Church Fathers to numerous foundational texts in the history of Catholicism.

The Web site itself is rich, easy to navigate, expertly done - but not cluttered or cutesy. The CD is a faithful rendition of the Encyclopedia's Web presence - yet not a mere mirror. It takes advantage of search and other CD-only features and is user-friendly, not resource-hogging, easy to install and to run even on the Windows 98 SE 1996 laptop I used as a worst-scenario test bench.

Why are people so interested in outdated and outmoded reference, typically rendered obsolete by subsequent research?

Nostalgia is part of the answer. These works of reference are refreshingly direct, politically incorrect, opinionated, and innocently naive. They are reminiscent of another, more

promising, age. Curiosity is another reason. What did our forefathers know or thought they knew about heredity, nationalism, the atom, the Jews, and germs? It is startling to discover both how far we have progressed and how much we have forgotten.

Then there is the trivia. Mountains of little-known facts about long-forgotten people, countries, politics, arts, and crafts. It is the closest we can get to time-travel and, so it seems, equally exciting. By exploring our roots, we get to know ourselves and in this [narcissistic age and civilization](#) - who can resist such a proposition?

The Pears Cyclopaedia

"Affection" and "attachment" are terms rarely used in a review of a reference title - but, they are the ones that come to my mind as I contemplate the new (2009-2010) edition of Pears Cyclopaedia, one of many editions I possess. I confess to my addiction proudly: control freak that I am, I like holding the Universe of Knowledge in the palm of my hand, in manageable, pocket-sized form.

What renders this single volume unique is not that it is a cornucopia of facts (which it is, abundantly and lavishly so), but that it arranges them lovingly in patterns and narratives and, thus, endows them with sense and sensibility. It is at once an erudite friend, a mischievous iconoclast, a legend to our times, the sum total of human knowledge in a rich variety of fields, and a treasure-trove of trivia and miscellany. It is as compellingly readable as the best non-fiction, as comprehensive as you need it to be, and as diverting as a parlor game. It is both quaint and modern in the best senses of these loaded words.

Pears Cyclopaedia is a labor of love and it shows. Its current editor (formerly, its Assistant Editor), Christopher Cook, has been at it for decades now. Annually, he springs a delicious surprise on the avid cult that is the readership of Pears Cyclopaedia: new topics that range from wine connoisseurship to gardening.

The evergreens - meticulously updated every year to reflect the very last and best - include: a Chronicle of Events; Prominent People; Background to World Affairs; Britain Today (the Cyclopaedia being a British institution); The Historical World; Background to Economic Events; a General Compendium; a Biblical Glossary; Myths and Legends; Ideas and Beliefs (my favorite); a superb Gazetteer of the World (alas, this year, for the first time, without its attendant atlas); close to 2600 entries of General Information; a Literary Companion; an Introduction to Art and Architecture; The Worlds of Music, Cinema, Science, and Wine (in separate chapters, of course); a Sporting Almanac; Computing and the internet; The Environment; and Medical Matters.

At close to 1000 pages, Pears Cyclopaedia is a bargain. Alas, its distribution leaves something to be desired. I have spent the better part of a long afternoon searching for it in vain in London's bookshops. Last time I had it ordered in Europe, I have waited for months on end for its arrival. It is also not exactly au courant on Amazon and Barnes and Noble. It should be. Pears Cyclopaedia is wonderful, in the true meaning of this word: it is full of wonders and, therefore, is itself a wonder. [Return](#)

DISCLAIMER: I have bought every single edition of Pears Cyclopaedia that I possess, except this last one, which was provided to me, as a review copy, by Penguin/Alan Lane.

The Six Sins of the Wikipedia

(The author was among the first contributors to Nupedia, the Wikipedia's peer-reviewed predecessor, and spent six years, on and off, studying the Wikipedia)

It is a question of time before the Wikipedia self-destructs and implodes. It poses such low barriers to entry (anyone can edit any number of its articles) that it is already attracting masses of teenagers as "contributors" and "editors", not to mention the less savory flotsam and jetsam of cyber-life. People who are regularly excluded or at least moderated in every other Internet community are welcomed, no questions asked, by this wannabe self-styled "encyclopedia".

There is nothing new about the collaborative model that is the Wikipedia. The Oxford English Dictionary (OED), first published in 1928, was the outcome of seventy years of combined efforts of 2,000 zealous and industrious volunteers. The difference between the Wikipedia and the OED, though, is that the latter appointed editors to oversee and tutor these teeming hordes of wannabe scholars.

Six cardinal (and, in the long-term, deadly) sins plague the Wikipedia. What unites and underlies all its deficiencies is simple: Wikipedia dissembles about what it is and how it operates. It is a self-righteous confabulation and its success in deceiving the many attests not only to the gullibility of the vast majority of Netizens but to the PR savvy of its sleek and slick operators.

1. The Wikipedia is opaque and encourages recklessness

The overwhelming majority of contributors to and editors of the Wikipedia remain anonymous or pseudonymous throughout the process. Anyone can register and members' screen-names (handles) mean nothing and lead nowhere. Thus, no one is forced to take responsibility for what he or she adds to the "encyclopedia" or subtracts from it.

This amounts to an impenetrable smokescreen: identities can rarely be established and evading the legal consequences of one's actions or omissions is easy. As the exposure of the confabulated professional biography of Wikipedia Arbitrator Essjay in March 2007 demonstrates, some prominent editors and senior administrators probably claim fake credentials as well.

A software tool developed and posted online in mid-2007, the Wikiscanner, unearthed tens of thousands of self-interested edits by "contributors" as diverse as the CIA, the Canadian government, and Disney. This followed in the wake of a spate of scandals involving biased and tainted edits by political staffers and pranksters.

Everything in the Wikipedia can be and frequently is edited, re-written and erased and this includes the talk pages and even, to my utter amazement, in some cases, the history pages! In other words, one cannot gain an impartial view of the editorial process by sifting through the talk and history pages of articles (most of which are typically monopolized by fiercely territorial "editors"). History, not unlike in certain authoritarian regimes, is being constantly re-jigged on the Wikipedia!

2. The Wikipedia is anarchic, not democratic

The Wikipedia is not an experiment in online democracy, but a form of pernicious [anarchy](#). It espouses two misconceptions: (a) That chaos can and does lead to the generation of artifacts with lasting value and (b) That knowledge is an emergent, mass phenomenon. But The Wikipedia is not conducive to the unfettered exchange of information and opinion that is a prerequisite to both (a) and (b). It is a war zone where many fear to tread. the Wikipedia is a negative filter (see the next point).

3. The Might is Right Editorial Principle

Lacking quality control by design, the Wikipedia rewards quantity. The more one posts and interacts with others, the higher one's status, both informal and official. In the Wikipedia planet, authority is a function of the number of edits, no matter how frivolous. The more aggressive (even violent) a member is; the more prone to flame, bully, and harass; the more inclined to form coalitions with like-minded trolls; the less of a life he or she has outside the Wikipedia, the more they are likely to end up being administrators.

The result is erratic editing. Many entries are completely re-written (not to say vandalized) with the arrival of new kids on the Wikipedia block. Contrary to advertently-fostered impressions, the Wikipedia is not a cumulative process. Its text goes through dizzyingly rapid and oft-repeated cycles of destruction and the initial contributions are at times far deeper and more comprehensive than later, "edited", editions of same.

Wikipedia is misrepresented as an open source endeavor. Nothing can be further from the truth. Open source efforts, such as Linux, involve a group of last-instance decision-makers that coordinate, vet, and cull the flow of suggestions, improvements, criticism, and offers from the public. Open source communities are hierarchical, not stochastic.

Moreover, it is far easier to evaluate the quality of a given snippet of software code than it is to judge the truth-content of an edit to an article, especially if it deals with "soft" and "fuzzy" topics, which involve the weighing of opinions and the well-informed exercise of value judgments.

4. Wikipedia is against real knowledge

The Wikipedia's ethos is malignantly anti-elitist. Experts are scorned and rebuffed, attacked, and abused with official sanction and blessing. Since everyone is assumed to be equally qualified to edit and contribute, no one is entitled to a privileged position by virtue of scholarship, academic credentials, or even life experience.

The Wikipedia is the epitome and the reification of an ominous trend: Internet surfing came to replace research, online eclecticism supplanted scholarship, and [trivia passes for erudition](#). Everyone's an instant scholar. If you know how to use a search engine, you are an authority.

Wikipidians boast that the articles in their "encyclopedia" are replete with citations and references. But citations from which sources and references to which works and authors? Absent the relevant credentials and education, how can an editor tell the difference between

information and disinformation, quacks and authorities, fact and hearsay, truth and confabulation?

Knowledge is not comprised of lists of facts, "facts", factoids, and rumors, the bread and butter of the Wikipedia. Real facts have to be verified, classified, and arranged within a historical and cultural context. Wikipedia articles read like laundry lists of information gleaned from secondary sources and invariably lack context and deep, true understanding of their subject matter.

Can Teenagers write an Encyclopedia?

The vast majority of Wikipedia contributors and editors are under the age of 25. Many of the administrators (senior editors) are in their teens. This has been established by a survey conducted in 2003 and in various recent interviews with Jimmy Wales, the co-founder of the enterprise.

The truth is that teenagers cannot do the referencing and research that are the prerequisite to serious scholarship - unless you stretch these words to an absurd limit. Research is not about hoarding facts. It is about identifying and applying context and about possessing a synoptic view of ostensibly unrelated data.

Moreover, teenagers can't tell hype from fact and fad from fixture. They lack the perspectives that life and learning -structured, frontal, hierarchical learning - bring with them.

Knowledge is not another democratic institution. It is hierarchical for good reason and the hierarchy is built on merit and the merit is founded on learning.

It is not surprising that the Wikipedia emerged in the USA whose "culture" consists of truncated attention spans, snippets and soundbites, shortcuts and cliff notes. The Wikipedia is a pernicious counter-cultural phenomenon. It does not elevate or celebrate knowledge. The Wikipedia degrades knowledge by commoditizing it and by removing the filters, the gatekeepers, and the barriers to entry that have proven so essential hitherto.

Recently, on a discussion list dedicated to books with a largely academic membership, I pointed out an error in one of the Wikipedia's articles. The responses I received were chilling. One member told me that he uses the Wikipedia to get a rough idea about topics that are not worth the time needed to visit the library. Whether the rough ideas he was provided with courtesy the Wikipedia were correct or counterfactual seemed not to matter to him. Others expressed a mystical belief in the veracity of "knowledge" assembled by the masses of anonymous contributors to the Wikipedia. Everyone professed to prefer the content proffered by the Wikipedia to the information afforded by the Britannica Encyclopedia or by established experts!

Two members attempted to disprove my assertion (regarding the error in the Wikipedia) by pointing to a haphazard selection of links to a variety of Internet sources. Not one of them referred to a reputable authority on the subject, yet, based largely on the Wikipedia and a sporadic trip in cyberspace, they felt sufficiently confident to challenge my observation (which is supported by virtually all the leading luminaries in the field).

These gut reactions mirror the Wikipedia's "editorial" process. To the best of my knowledge, none of my respondents was qualified to comment. None of them holds a relevant academic degree. Neither do I. But I strove to stand on the shoulders of giants when I spotted the error while my respondents explicitly and proudly refused to do so as a matter of principle!

This may reflect the difference in academic traditions between the United States and the rest of the world. Members of individualistic, self-reliant and [narcissistic societies](#) inevitably rebel against authority and tend to believe in their own omnipotence and omniscience. Conversely, the denizens of more collectivist and consensus-seeking cultures, are less sanguine and grandiose and more willing to accept teachings ex-cathedra. So said Theodore Millon, a great scholar and an undisputed authority on personality disorders.

5. Wikipedia is not an encyclopedia

Truth in advertising is not the Wikipedia's strong suit. It presents itself, egregiously, as an encyclopedia. Yet, at best it is a community of users who exchange eclectic "information" on a regular and semi-structured basis. This deliberate misrepresentation snags most occasional visitors who are not acquainted with the arcane ways of the Wikipedia and trust it implicitly and explicitly to deliver facts and well-founded opinions.

There is a lot the Wikipedia can do to dispel such dangerous misconceptions (for instance, it could post disclaimers on all its articles and not only on a few selected pages). That it chooses to propagate the deception is telling and renders it the equivalent of an intellectual scam, a colossal act of con-artistry.

The Wikipedia thus retards genuine learning by serving as the path of least resistance and as a substitute to the real thing: edited, peer-reviewed works of reference. High school and university students now make the Wikipedia not only their first but their exclusive "research" destination.

Moreover, the Wikipedia's content is often reproduced on thousands of other Website ***WITHOUT*** any of its disclaimers and without attribution or identification of the source. The other day I visited www.allexperts.com and clicked on its "free encyclopedia". It is a mirror of the Wikipedia, but without anything to indicate that it is not a true, authoritative, peer-reviewed encyclopedia. The origin of the articles - Wikipedia - was not indicated anywhere.

It could have been different.

Consider, for instance the online and free [Stanford Encyclopedia of Philosophy](#). Each entry is written by an expert but is frequently revised based on input from members of the public. It combines the best elements of the Wikipedia (feedback-driven evolution) with none of its deficiencies.

6. The Wikipedia is rife with libel and violations of copyrights

As recent events clearly demonstrate, the Wikipedia is a hotbed of slander and libel. It is regularly manipulated by interns, political staffers, public relations consultants, marketing personnel, special interest groups, political parties, business firms, brand managers, and others

with an axe to grind. It serves as a platform for settling personal accounts, defaming, distorting the truth, and re-writing history.

Less known is the fact that the Wikipedia is potentially and arguably the greatest single repository of copyright infringements. A study conducted in 2006 put the number of completely plagiarized articles at 1% of the total - a whopping 15,000 in all. Books - from the Diagnostic and Statistical Manual, through David Irving's controversial work, down to [my own, far humbler, tomes](#) - are regularly ripped off and sizable chunks are posted in various articles, with and without attribution. The Wikipedia resembles P2P (peer-to-peer) networks such as the first incarnation of Napster: it allows users to illegally share pirated content using an application (Wiki) and a central Website (the Wikipedia).

The Wikipedia does not provide any effective mechanism to redress wrongs, address problems, and remedy libel and copyright infringements. Editing the offending articles is useless as these are often "reverted" (restored) by the offenders themselves.

My personal experience is that correspondence with and complaints to Wikimedia and to Jimmy Wales go unanswered or stonewalled by a variety of minions. Even when (rarely) the offending content is removed from the body of an article it remains available in its history pages.

The Wikipedia has been legally shielded from litigation because, hitherto, it enjoyed the same status that Bulletin Boards Services (BBS) and other, free for all, communities have. In short: where no editorial oversight is exerted, no legal liability arises to the host even in cases of proven libel and breaches of copyright.

But the Wikipedia has been treading a thin line here as well. Anyone who ever tried to contribute to this "encyclopedia" discovered soon enough that it is micromanaged by a cabal of c. 1000 administrators (not to mention the Wikimedia's full-time staff, fuelled by 2 million US dollars in public donations). These senior editors regularly interfere in the contents of articles. They do so often without any rhyme or reason and on a whim (hence the anarchy) - but edit they do.

This fact and recent statements by Wales to the effect that the Wikipedia is actually regularly edited may provoke victims of the Wikipedia into considering class action lawsuits against the Wikimedia, Jimmy Wales personally, and their Web hosting company.

The Wikipedia is an edited publication. The New-York Times is responsible for anything it publishes in its op-ed section. Radio stations pay fines for airing obscenities in call-in shows. Why treat the Wikipedia any differently? Perhaps, hit in the wallet, it will develop the minimal norms of responsibility and truthfulness that are routinely expected of less presumptuous and more inconspicuous undertakings on the Internet.

Google-Wikipedia-MySpace - How Teenagers Hijacked the Internet

A recent (late 2006) study by Heather Hopkins from Hitwise demonstrates the existence of a pernicious feedback loop between Google, Wikipedia, MySpace, and Blogspot. Wikipedia gets 54% of its traffic from Google search results. The majority of Wikipedia visitors then

proceed to MySpace or Blogspot, both of which use Google as their search service and serve Google-generated advertisements.

Google has changed its search algorithm in late 2005-early 2006. I have been monitoring 154 keywords on Google since 1999. Of these, the number one (#1) search result in 128 keywords is now a Wikipedia article. More than a quarter (38 out of 128) of these "articles" are what the Wikipedia calls "stubs" (one or two sentences to be expanded by Wikipedians in the future). Between 7 and 10 of the articles that made it to the much-coveted number one spot are ... empty pages, placeholders, yet to be written!

This is Google's policy now: Wikipedia articles regardless of their length or quality or even mere existence are placed by Google's algorithm high up in the search results. Google even makes a Wikipedia search engine available to Webmasters for their Websites. The relationship between Google and Wikipedia is clearly intimate and mutually-reinforcing.

Google's new algorithm, codenamed Big Daddy, still calculates the popularity of Websites by counting incoming links. An incoming link is a link to a given Website placed on an unrelated page somewhere on the Web. The more numerous such links - the higher the placement in Google's search results pages. To avoid spamming and link farms, Google now rates the quality of "good and bad Internet neighborhoods". Not all incoming links are treated equally. Some Internet properties are shunned. Links from such "bad" Websites actually contribute negatively to the overall score.

The top results in all 154 keywords I have been diligently monitoring since 1999 have changed dramatically since April 2006. The only common thread in all these upheavals is one: the more incoming links from MySpace a Website has - the higher it is placed in the search results.

In other words: if Website A has 700 incoming links from 700 different Websites and website B has 700 incoming links, all of them from various pages on MySpace, Website B is ranked (much) higher in the search results. This holds true even when both Websites A and B sport the same PageRank. This holds true even if the bulk of Website A's incoming links come from "good properties" in "good Internet neighborhoods". Incoming links from MySpace trump every other category of incoming links.

An unsettling pattern emerges:

Wikipedia, the "encyclopedia" whose "editors" are mostly unqualified teenagers and young adults is touted by Google as an authoritative source of information. In search results, it is placed well ahead of sources of veritable information such as universities, government institutions, the home pages of recognized experts, the online full-text content of peer-reviewed professional and scholarly publications, real encyclopedias (such as the Encarta), and so on.

MySpace whose 110 million users are predominantly prepubescent and adolescents now dictates what Websites will occupy the first search results in Google's search results pages. It is very easy to spam MySpace. It is considered by some experts to be a vast storehouse of link farms masquerading as "social networks".

Google has vested, though unofficial and unannounced and, therefore, undisclosed interests in both Wikipedia and MySpace. Wikipedia visitors end up on various properties whose search and ad placement technologies are Google's and Wikipedia would have shriveled into insignificance had it not been to Google's relentless promotion of its content.

The Wikipedians Fight Back

This is the fifth essay I have written about the Wikipedia. Evidently, Wikipedians, Wikipedia, and Wikimedia are vehemently opposed to free speech when it is directed against them.

Judge for yourselves:

A group of Wikipedians apparently decided to take revenge and/or to warn me off. They have authored a defamatory and slanderous article about "Sam Vaknin" in their "encyclopedia". To leave no room for doubt, at the bottom of this new entry about me, they listed all my articles against the Wikipedia. After repeated complaints and legal threats, the article was removed, though any "editor" can still write an equally-slanderous new one at any time.

Additionally, I received an e-mail message from Brad Patrick, the Wikimedia's General Counsel (attorney), asking me to copy him on all future correspondence with Wikipedia, Jimmy Wales, or anyone else associated with the Wikimedia Foundation and its projects. I declined his "request". He then proceeded to ask to communicate with my lawyer since "I raised the issue of suing his client." Couldn't be subtler.

I was also banned from posting to the Wikipedia - my punishment for what the Wikipedia calls "sockpuppetry" (essentially, editing articles without first logging in to one's account). It is ironic, since the vast majority of Wikipedians - including the administrator who banned me - edit articles anonymously or hide behind utterly meaningless handles and screen names. There is not a shred of proof, of course, that I have edited any article, with or without logging in.

Finally, my name as well as references to my work were removed from a few articles (for instance, from the entries about the Narcissistic Personality Disorder and Narcissism (Psychology)). At least one of the "editors" who were responsible for what appears to be a vindictive act ("Danny") claims to be somehow associated with the Wikimedia's grants commission. Another editor - Zeraeph - has been stalking me and members of my support groups for almost ten years now.

Interview granted to Tiempo Magazine (Spain), August 2009

Q: A recent thesis published by a Spanish university states that the Wikipedia is changing some patterns and developing certain ways to increase the quality of the articles, mostly by enforcing discussion and organizational aspects... Do you still think that the Wikipedia is not an encyclopaedia?

A: The Wikipedia is the massive, structured **blog** of an **online cult**. The cult is dedicated to the agglomeration of information and disinformation (i.e. data) and its classification (in the form of articles). It also revolves around the personality of Jimmy Wales and his "disciples"

and, in this sense, it is a [personality cult](#) and a *pseudo-religion*. The only thing *the Wikipedia is not* is an *encyclopedia*.

Encyclopedias are authored by people who are authorities in their respective fields; whose credentials are transparent and vetted by their peers; and who subject themselves to review by equally qualified people. The Wikipedia is authored and edited by faceless, anonymous writers and editors. The fact that they are registered means nothing as the vast majority of them still hide behind aliases and handles. Some of them have been proven to have confabulated biographies and fictitious self-imputed academic credentials.

Most Wikipedia articles sport references. But references to which material? ***Only experts know which books, articles, and essays are worth citing from!*** The truth is that the Wikipedians - many of them teenagers - cannot do the referencing and research that are the prerequisite to serious scholarship (unless you stretch these words to an absurd limit).

Research is not about hoarding facts. It is about identifying and applying ***context*** and about possessing a ***synoptic view*** of ostensibly unrelated data. The Wikipedians can't tell hype from fact and fad from fixture. Many of them lack the perspectives that life, experience, exposure, and learning -structured, frontal, hierarchical learning - bring with them. Knowledge is not another democratic institution, it cannot be crowdsourced. It is hierarchical for good reason and the hierarchy is built on merit and the merit is founded on learning.

There is ***nothing new*** about the collaborative model that is the Wikipedia. ***The Oxford English Dictionary (OED)***, first published in 1928, was the outcome of seventy years of combined efforts of 2,000 zealous and industrious ***volunteers***. The difference between the Wikipedia and the OED, though, is that the latter appointed editors to oversee and tutor these teeming hordes of wannabe scholars. The Encyclopedia Britannica (and online encyclopedias such as Citizendium) are going this route.

Q: Your article 'The Six Sins of the Wikipedia' really became a reference since it was published 3 years ago. Anarchy was one of the sins you described in it. In fact, although the Wikipedia was called in the beginning a free and democratic project, after your report –and some other studies and books- Jimmy Wales and the directors stopped talking about democracy. Now they talk about the anarchy involved in all the process. Do you feel responsible for some of these changes?

A. My article has been read by hundreds of thousands of people and quoted widely in many online and offline media. Yet, it is not mentioned in the very long Wikipedia article which deals with criticisms of the Wikipedia. This shows you the true nature of the Wikipedia: censorship, petty grievances, bias, and one-upmanship are rife. Not exactly the hallmarks of an encyclopedia.

The Wikipedia is a veritable ***battlefield***: many topics and personages are ***blacklisted*** and activist editors delete within minutes any mention of them. Another example: the Birther movement in the USA (people who challenge Barack Obama's eligibility to become President based on his alleged birth place in Kenya). Though a fringe group, it is sufficiently prominent to have warranted repeated references in White House press conferences. Only the Wikipedia keeps ignoring it and deleting references to it in the Barack Obama article.

I do not believe that my article had any influence on the culture of the Wikipedia. Procedural matters are decided by a cabal headed by Jimmy Wales, whose grandiose cosmic-messianic vision of the Wikipedia shapes it. Wales reacts to criticism by tweaking and facelifting, not by offering fundamental changes of the model. This is because he truly adheres to the notions of *creative anarchy*, *crowd wisdom*, and *emergent knowledge* and because he doesn't know the differences between *data* (raw material, some of it relevant) and *knowledge* (the finished product).

Q. There have been reported many errors in Wikipedia's coverage of current news, mostly due to anonymous editors, partly fixed through the flagged edition system. Where's the border between an encyclopedia and a website? Shouldn't an encyclopaedia take some time to compile facts of events with some time to think and cool down the issue rather than "cover" an event?

A. Most print encyclopedias publish yearbooks. Perspective is important, but so are timeliness and coverage. The difference between the Wikipedia and other encyclopedias is that the cumulative knowledge base and authoritative authorship of the Britannica, for instance, endow even its yearbook with a modicum of timelessness. Wikipedia's coverage, by comparison, is ephemeral and often misleading because the people who put it together are ignorant or prejudiced or both.

Q. How would you describe the Wikipedia in relation with other encyclopaedias?

A. I am an encyclopedia junkie. I collect work of reference, old and new. As far as I can judge, the Wikipedia's coverage of the natural and exact sciences is pretty good. Its humanities articles are an unmitigated disaster, though: they are replete with nonsense, plagiarism, falsities, and propaganda. I know a bit about psychology, economics, philosophy, and the history of certain parts of the world. Articles dealing with these fields are utterly and sometimes dangerously unreliable.

Q. How is your relation with *Wikipedians*? Are you still one of their enemies?

A. I was invited to write a few articles for the Nupedia, the Wikipedia's predecessor. When Larry Sanger, the Wikipedia's true originator, started the Wikipedia, I was among the first to contribute to it and kept on contributing to it until 2003. I have never been an enemy of the Wikipedia. I am, however, against the cult that has developed around it and the fact that it misrepresents itself as an encyclopedia.

Q. Do you agree with your own points of view after three years?

A. Things have improved a lot since I have written the article. The Wikipedia is less chaotic; less anonymous; the articles more rigorously referenced. But these are cosmetic changes. In the essence, the six "sins" I identified way back still stand: (1) The Wikipedia is *opaque* and encourages recklessness; (2) The Wikipedia is *anarchic* and definitely *not democratic*; (3) The *Might is Right Editorial Principle* (quantity of edits is valued over quality and relationships with other editors count more than knowledge); (4) Wikipedia is against real knowledge because it is *against experts* and academic "elites"; (5) The Wikipedia is not an encyclopedia and *misrepresents itself* as such; (6) The Wikipedia is rife with *libel and violations of copyrights*.

Q. Do you regret of any of the six sins now that some things are changing in the Wikipedia, like the prohibition for anonymous users to edit?

A. There is no prohibition on anonymous users to edit. All the Wikipedia users are anonymous to this very day. The prohibition is on ***unregistered*** users to edit. Users need to have an account and to wait three days before they can contribute new articles or make major edits. User identities are still unknown as all of them hide behind aliases and handles.

I am sorry that Wales didn't have the guts to go all the way and implement a model similar to the Citizendium and the Britannica: qualified editors to review the contributions and edits of the teeming masses and make sure that the Wikipedia is not the bloody and confusing mess that it is now.

Interview with Tom Panelas - Encyclopedia Britannica (September 2006)

Tom Panelas is the Encyclopedia Britannica's Director of Corporate Communications

Q. Is the Wikipedia an encyclopedia in any sense of the word?

A. I don't think it's crucial that everyone agree on whether Wikipedia is or is not an encyclopedia. What's important is that people who might use it understand what it is and how it differs from the reference works they're used to. Wikipedia allows anyone to write and edit articles, regardless of their knowledge of the subjects on which they're writing, their ability to write, or their commitment to truth. This policy has allowed Wikipedia to grow large very fast, but it's come at a price.

The price is that many of its articles are inaccurate, poorly written, long and bloated, or laden with bias and spin. Despite what some people would like to believe about Wikipedia, that its system is self-correcting, many inaccuracies remain for long periods of time, new ones are added, and, judging from quite a few media reports, sound information posted by people knowledgeable on a subject is often undone by others who know nothing about it. This is a natural result of the way Wikipedia is put together, its willingness to let anyone write and edit and unwillingness to give precedence to people who know what they're talking about. People who use Wikipedia should be aware of these liabilities.

Q. The Britannica used to be freely accessible until it was converted, a few years back, into a subscriber-only resource. Do you regret this decision? Perhaps if the Britannica were to provide a free authoritative alternative to the Wikipedia, it would still be the first stop of seekers of information online?

A. We don't regret the decision to charge a subscription fee for the premium portions of Britannica Online. Today our site has thousands of free articles, and those who subscribe to our premium service pay a fraction of what it cost for access to a high-quality, reliable encyclopedia only a few years ago. About a hundred million people worldwide have access to the Encyclopaedia Britannica online, through schools, libraries, and universities, and they don't pay for it at all.

Britannica has indeed become an alternative - not just to Wikipedia but to all of the unreliable information that courses through the public sphere these days, much of it on the Internet. The Web has been great for enabling publishers like us to reach many more people than we ever could before, but it's also made it possible for errors, propaganda, and urban myths to appear in the guise of factual truth. As more people realize that the contents of the Internet are often not what they seem to be, they've turned to sources like Britannica, which apply the same rigorous standards to our online products that we have always used in all of our products.

Q. "Nature" compared the Wikipedia to the Britannica and resolved that both suffer, more or less, from the same rate of errors. You hotly disputed these findings. Can you elaborate?

A. The Nature article was bogus. Responsible people who paid attention to the facts understand that it's been discredited and don't even cite it. We spent twenty single-spaced pages rebutting it, so there's little need for elaboration beyond that. You can read what we said here

http://corporate.britannica.com/britannica_nature_response.pdf

You can also read what USA Today

http://www.usatoday.com/tech/columnist/andrewkantor/2006-03-30-nature-britannica_x.htm

and Nicholas Carr

http://www.rougtype.com/archives/2006/03/britannicas_ind.php

had to say about it.

Q. Peer-reviewed, professionally-edited reference works do have their shortcomings (elitism, conservatism, lack of pluralism, limitations of information available to the scholars involved). "Egalitarian" communal efforts like the Wikipedia do unearth, at times, data not available in "old-fashioned" encyclopedias. Moreover, the Wikipedia offers a far wider range of coverage and real-time updates. Can't it complement the Britannica? Can't the two even collaborate in some ways?

A. It's a myth that professionally edited reference works are limited or elitist. On the contrary, using a rigorous editorial method that draws on people who have spent their lives mastering their subjects produces an excellent balance in perspective. We always direct our contributors to include all major controversies in their surveys of a subject, whether those points of view are fashionable or not. This approach produces good articles for lay readers, who are the people who use encyclopedias. When the work is done by volunteers who aren't adept at this kind of work, the results often settle into a comfortable consensus that favors the viewpoint in vogue among the group of people doing the work. Usually, it's the people who are trained and experienced in going beyond their own points of view that manage to do it well.

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Battle of the Titans - Encarta vs. the Britannica

The Encarta Encyclopedia - and even more so, the Encarta Reference Library Premium 2005 - is an impressive reference library. It caters effectively (and, at \$70, cheaply) to the educational needs of everyone in the family, from children as young as 7 or 8 years old to adults who seek concise answers to their queries. It is fun-filled, interactive, colorful, replete with tens of thousands of images, video clips, and audio snippets.

The Encarta is extremely user-friendly, with its search bar and novel Visual Browser. It comes equipped with a dictionary, thesaurus, chart maker, searchable index of quotations, games, and an Encarta Kids interface. Installation is easy. The Encarta is augmented by weekly or bi-weekly updates and the feature-rich online MSN Encarta Premium with its Homework Help offerings.

The Encyclopedia Britannica (established in 1768) sports Student and Elementary versions of its venerable flagship product - but it is far better geared to tackle the information needs of adults and, even more so, professionals. Its 100,000 articles are long and deep, supported by impressive bibliographies, and written by the best scholars in their respective fields.

The Britannica, too, come bundled with an atlas (less detailed than the Encarta's), dictionary, thesaurus, classic articles from previous editions, an Interactive Timeline, a Research Organizer, and a Knowledge Navigator (a Brain Stormer). It is as user-friendly as the Encarta. The Britannica, though, is updated only 2-4 times a year, a serious drawback, only partially compensated for by 3 months of free access to the its unequalled powerhouse online Web site.

It seems that the Britannica and the Encarta cater to different market segments and that the Britannica provides more in-depth coverage of its topics while the Encarta is a more complete, PC-orientated reference experience. The market positioning of the Britannica's Elementary and Student Encyclopedias is, therefore, problematic. Encarta has an all-pervasive hold on and ubiquitous penetration of the child-to-young adult markets.

Both encyclopedias offer an embarrassment of riches. Users of both find the wealth and breadth of information daunting and data mining is fast becoming an art form. Encarta introduced the Visual (Virtual) Browser and Britannica incorporated the Brain Stormer to cope with this predicament. But few know how to deploy them effectively.

Encarta actively encourages fun-filled browsing and Britannica fully supports serious research. These preferences are reflected in the design of the two products. The Encarta is a riot of colors, sidebars, videos, audio clips, photos, embedded links, literature, Web resources, and quizzes. It is a product of the age of mass communication, a desktop extension of television and the Internet.

The Britannica is a sober assemblage of first-rate texts, up to date bibliographies, and minimal multimedia. It is a desktop university library: thorough, well-researched, comprehensive, trustworthy.

Indeed, the Encarta and the Britannica offer competing models for interacting with the Internet. Both provide content updates - the Encarta weekly or bi-weekly and the Britannica 2-4 times a year. Both offer additional and timely content and revisions on dedicated Web sites. But the Encarta conditions some of its functions - notably its research tools and updates - on registration with its Plus Club. The Britannica doesn't.

The Encarta incorporates numerous third-party texts and visuals (including dozens of Discovery Channel videos, hundreds of newspaper articles, and a plethora of Scientific American features). The Encarta's multimedia offerings are also impressive with thousands of video and audio clips, maps, tables, and animations. The Britannica provides considerably more text - though it has noticeably enhanced its non-textual content over the year (the 1994-7 editions had nothing or very little but text).

Both reference products would do well to integrate with new desktop search tools from Google, Microsoft, Yahoo, and others. A seamless experience is in the cards. Users must and will be able to ferret content from all over - their desktop, their encyclopedias, and the Web - using a single, intuitive interface.

The new Encarta Search Bar, which was integrated into the product this past year, enables users to search any part of the Encarta application (encyclopedia, dictionary, thesaurus, etc) without having the application open. Definitely a step in the right direction.

Having used both products extensively in the last few months, I found myself entertaining some minor gripes:

The Encarta offers 3-D tours which gobble up computer resources and are essentially non-interactive a limited. Is it worth the investment and the risk to the stability and performance of the user's computer?

The editorial process is not transparent. It is not clear how both products cope with contemporary and recent developments, minority-sensitive issues, and controversial topics (such as abortion and gay rights).

The Encarta tries to cater to the needs of challenged users, such as the visually-impaired - but is still far from doing a good job of it. The Britannica doesn't even bother.

The atlas, dictionary, and thesaurus incorporated in both products are surprisingly outdated. Why not use a more current - and dynamically updated - offering? What about dictionaries for specialty terms (medical or computer glossaries, for instance)? The Encarta's New English Dictionary dropped a glossary of computer terms it used to include back in 2001. All's the pity.

Both encyclopedias consume (not to say) hog computer resource far in excess of the official specifications. This makes them less suitable for installation on older PCs and on many laptops. Despite the hype, relatively few users possess DVD drives (but those who do find, in both products, the entire encyclopedia available on one DVD).

But that's it. Don't think twice. Run to the closest retail outlet (or surf the relevant Web sites) and purchase both products now. Combined, these reference suites offer the best value for

money around and significantly enhance your access to knowledge and wisdom accumulated over centuries all over the world.

Interview with Tom Panelas (Britannica)

January, 2005

Q: Would you agree that the Britannica and the Encarta cater to different market segments and that the Britannica provides more in-depth coverage of its topics while the Encarta is a more complete, PC-orientated reference experience? If so, what is the market positioning of the Britannica's Elementary and Student Encyclopedias?

TP: The most important thing about Britannica's Ultimate Reference Suite is that it has three encyclopedias -- one for every reading level - and therefore can be used profitably by the whole family. So, yes, the Encyclopaedia Britannica itself is the more comprehensive encyclopedia, but realize also that the Ultimate Reference Suite also has Britannica Student Encyclopedia, created for the same age range as Encarta, and Britannica Elementary Encyclopedia, for younger readers.

So our positioning is that Britannica serves you from grade school to graduate school and beyond.

Q: Both encyclopedias offer an embarrassment of riches. Users find the wealth and breadth of information daunting and data mining is fast becoming an art form. Encarta introduced the Visual (Virtual) Browser and Britannica introduced the BrainStormer to cope with this predicament. Are there any improvements - or alternative solutions - planned in future editions?

TP: The 2006 edition will include search enhancements to BrainStormer. They're under development right now, so I don't have too many details. We also have some unique indexing systems that underlie the structure of the Britannica database, which our indexers have been at work on for years. We expect these to be the basis of some powerful search and browse applications in the years ahead.

Q: How does your product strike a balance between browsing and research? Is one activity encouraged over the other?

TP: Most people like to do keyword searching, so we try to keep that working sharply, but we have also tried to introduce as many other ways to access information as possible, such as subject browse, index browse, atlas, timelines, and BrainStormer. People have different learning styles and different preferences for how to find information. We try to indulge all of them.

Q: The Encarta and the Britannica offer competing models for interacting with the Internet. Both offer updates - the Encarta weekly or bi-weekly and the Britannica 2-4 times a year. Both provide additional and timely content and revisions on dedicated Web sites. But the Encarta conditions some of its functions - notably its research tools and updates - on registration with its Plus Club. The Britannica doesn't. Are you considering a change in your approach?

TP: We're not.

Q: *The Encarta incorporates numerous third-party texts and visuals (including dozens of Discovery Channel videos, hundreds of newspaper articles, and a plethora of Scientific American features). The Encarta's multimedia offerings are also impressive with thousands of video and audio clips, maps, tables, and animations. The Britannica provides considerably more text. Is the Britannica planning to follow suit or will it remain mainly text based?*

TP: Well, I wouldn't say we're "mainly" text based - we have added a lot of multimedia over the years, and we've won some awards for our multimedia - but we will continue to offer comprehensive information for all ages. When you come down to it, the information that really matters in reference works is words. We'll continue to add multimedia as well, space permitting, but covering a topic thoroughly and properly comes first.

Q: *Will the Encarta/Britannica integrate with new desktop search tools from Google, Microsoft, and others?*

TP: Yes, that's a priority for 2006.

Q: *In the editorial process, how do you cope with contemporary and recent developments, minority-sensitive issues, and controversial topics (such as abortion and gay rights)?*

TP: This question calls for a treatise of its own. We have advisers all over the world consisting of the top scholars and experts in all fields, and with their help we try to bring reason and evidence to bear on developing the best approximation of truth that is humanly possible. Yes, it's hard work, because people disagree on many things, but it can be done reasonably well if you're determined. We strive to the extent possible for coverage that are universal - that is, it takes all major perspectives around the world into account and does not favor one "civilization" over another. One thing we insist on in all of our encyclopedias, regardless of language or what country they are published in, and that is that coverage of a topic be consistent everywhere. Like our eighteenth-century forebears, we believe that there is such a thing as truth and it is possible for humans to know it. Creating an encyclopedia is one of the ways humans do that. So we don't have different "truths," plural, for different countries or markets. We don't pander to local sensitivities or myths by covering a topic one way in one country and a different way in another.

Q: *What features cater to the needs of challenged users, such as the visually-impaired?*

TP: Most of the navigational features for which most people use the mouse have keyboard equivalents. We plan to do more in this area. We have concentrated in recent years on making our school and library products compliant with the U.S. Americans With Disabilities Act because the demand for this in that area is so strong. We are now turning to doing similar things with our consumer products.

Q: *The atlas, dictionary, and thesaurus incorporated in both products are outdated. Why not use a more current - and dynamically updated - offering? What about dictionaries for specialty terms (medical or computer glossaries, for instance)?*

TP: Sam, Can you give me examples of outdated dictionary information? We haven't seen much demand from our customers in specialized dictionaries.

Q: *Both encyclopedias consume (not to say) hog computer resource far in excess of the official specifications. This makes them less suitable for installation on older PCs and on many laptops. The Mackintosh interfaces are also clunky. How can and will these limitations be tackled?*

TP: We plan to improve speed and performance in 2006, especially for Mac, since we seem to be the only ones these days with a Mac version.

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Microsoft Embraces the Web: Encarta and MS Student 2006

July, 2005

Microsoft Encarta Premium 2006

Microsoft was long derided by its critics for having failed to fully grasp the Internet revolution. It was late in developing Net technologies such as a proprietary search engine and in coping with security threats propagated through the Web.

Not any more. Earlier this year MSN rolled out a great search engine and now Microsoft has fundamentally revamped its reference products. By committing itself to this overhaul, Microsoft embraced reality: nine out of ten children (between the ages of 5 and 17) use computers (USA figures) - and 85% of these get their information online.

The Microsoft Encarta Premium 2006 is a breathtaking resource. It caters effectively (and, at \$50, affordably) to the educational needs of everyone in the family, from children as young as 7 or 8 years old to adults who seek concise answers to their queries. It is fun-filled, interactive, and colorful.

The 2006 Encarta's User Interface is far less cluttered than in previous editions. Content is arranged by topics and then by relevancy and medium. Add to this the Encarta's Visual Browser and you get only relevant data in response to your queries. The Encarta Search Bar, which was integrated into the product two years ago, and is resident in the Task Pane even when Encarta is closed, enables users to search any part of the Encarta application (encyclopedia, dictionary, thesaurus, etc).

The Encarta's new Web Companion is a (giant) step in the right direction. It obtains search results from all the major search engines without launching any additional applications (like a browser). Content from both the Encarta and the Web is presented side by side. This augmentation explicitly adopts the Internet and incorporates it as an important source of reference.

It may raise important and interesting issues of intellectual property, though. Web content copyright-holders may demand royalties from Microsoft for the use it makes of their wares in its commercial products.

Encarta would do well to also integrate with new desktop search tools from Google, Microsoft, Yahoo, and others. Users should be able to seamlessly access content from all over - their desktop, their encyclopedias, and the Web - using a single, intuitive interface.

The Encarta Premium includes a dictionary, thesaurus, chart maker, searchable index of quotations, games, 32 Discovery Channel videos, 25,000 photos and illustrations, 2800 sound and audio clips, hundreds of maps and tables, and 400 videos and animations. It incorporates

numerous third-party texts and visuals (including hundreds of newspaper articles and a plethora of Scientific American features).

The Encarta is augmented by weekly or bi-weekly updates and the feature-rich online MSN Encarta Premium with its Homework Help offerings. Unfortunately, the Encarta still conditions some of its functions - notably its research tools and updates - on registration with its Plus Club.

The Encarta is the most comprehensive, PC-orientated reference experience there is. No wonder it has an all-pervasive hold on and ubiquitous penetration of the child-to-young adult markets. Particularly enchanting is the Encarta Kids interface - an area replete with interactive quizzes, pictures, large icons, hundreds of articles, and links to the full version of the Encarta. A veritable and colorful sandbox. Those kids are going to get addicted to the Encarta, that's for sure!

Encarta actively encourages fun-filled browsing. It is a riot of colors, sidebars, videos, audio clips, photos, embedded links, literature, Web resources, and quizzes. It is a product of the age of mass communication, a desktop extension of television and the Internet.

Inevitably, in such a mammoth undertaking, not everything is peachy. A few gripes:

Regrettably, installation is not as easy as before. The Encarta 2006 makes use of Microsoft's .Net technology. As most home computers lack it, the installer insists on adding it to the anyhow bloated Windows Operating System. There is worse to come: the .Net version installed by Encarta 2006 is plagued with security holes and vulnerabilities. Users have to download service packs and patches from Windows Update if they do not wish to run the risk of having their computers compromised by hackers.

Fully installed, the Encarta Premium 2006 gobbles up more than 3.5 Gb. That's a lot - even in an age of ever cheaper storage. Most homesteads still sport PCs with 20-40 Gb hard disks. This makes the Encarta less suitable for installation on older PCs and on many laptops. Despite the hype, relatively few users possess DVD drives (but those who do, find the entire encyclopedia available on one DVD).

The Encarta DVD 3-D tours have improved but they still hog computer resources and are essentially non-interactive. Is it worth the investment and the risk to the stability and performance of the user's computer?

The Encarta tries to cater to the needs of challenged users, such as the visually-impaired - but is still far from doing a good job of it.

The atlas, dictionary, and thesaurus incorporated in the Encarta are outdated. Why not use a more current - and dynamically updated - offering? What about dictionaries for specialty terms (medical or computer glossaries, for instance)? The Encarta's New English Dictionary dropped a glossary of computer terms it used to include back in 2001. All's the pity.

But that's it. Encarta is a must-buy (especially if you have children). The Encarta is the best value for money around and significantly enhances your access to knowledge and wisdom accumulated over centuries all over the world. The amount and quality of content squeezed

into a \$50 package (before rebate) defies belief. I am a 44 years old adult but when I received my Encarta Premium 2006, I was once more a child in a land of wonders. How much is such an experience worth to you?

Microsoft Student 2006

The previous versions of Encarta included a host of homework tools. These have now been made into a separate product called Microsoft Student.

Homework assignments are the bane of most students I know (not to mention their hard-pressed and nescient parents). This is mainly because of the tedious and mind-numbing chores of data mining and composition. Additionally, as knowledge multiplies every 5-10 years, few parents and teachers are able to keep up.

Enter Microsoft Student 2006 - a productivity suite which includes the Encarta Encyclopedia, assignment templates, tutorials, graphing calculator software and a Web Companion.

Similar to the Encarta, MS Student's Web Companion obtains search results from all the major search engines without launching any additional applications (like a browser). Content from both the Encyclopedia (the full Encarta encyclopedia is built into MS Student) and the Web is presented side by side. This augmentation explicitly adopts the Internet and incorporates it as an important source of reference - as 80% of students have already done.

This may raise important and interesting issues of intellectual property, though. Web content copyright-holders may demand royalties from Microsoft for the use it makes of their wares in its commercial products.

MS Student would do well to also integrate with new desktop search tools from Google, Microsoft, Yahoo, and others. Students will benefit from seamless access to content from all over - their desktop, their encyclopedias, and the Web - using a single, intuitive interface.

MS Student's templates are actually clever adaptations of the popular Office suite of products - Word, Excel, and PowerPoint. They help the student produce homework plans and schedules, projects, book reports, presentations, research reports, charts, and analyses of problems in math, physics, and chemistry. Detailed step-by-step tutorials, Quick Starters, and pop-up toolbars (menus) guide the student along the way in a friendly, non-intrusive manner.

The graphing calculator is a wonder. It has both 2-D and 3-D capabilities and makes use of the full screen. Aided by an extensive Equations Library, it does everything except cook: trigonometry, calculus, math, charting, geometry, physics, and chemistry. And everything in full color!

And if this is not enough, the lucky owner is entitled to one year of Online Math Homework Help: step by step instructions and hints for solving math problems (including algebra and geometry). The program addresses most math textbooks and more are added all the time.

For the student keen on the liberal arts and the humanities, Student 2006 provides detailed Book Summaries of dozens of classic works. Besides plot synopses, the student gets acquainted with the author's life, themes and characters in the tomes, and ideas for book reports. This is buttressed by a Book of Quotations and the entire corpus of the Encarta Encyclopedia, dictionary, and thesaurus.

This is the first release of a great contribution to learning. Inevitably, it has a few flaws and glitches.

Start with the price. As productivity suites go, it is reasonably priced had its target population been adult professional users. But, at \$100, it is beyond the reach of most poor students and parents - its most immediate market niches.

Installation is not easy. MS Student 2006 makes use of Microsoft's .Net technology. As most home computers lack it, the installer insists on adding it to the anyhow bloated Windows Operating System. There is worse to come: the .Net version installed by Encarta 2006 is plagued with security holes and vulnerabilities. Users have to download service packs and patches from Windows Update if they do not wish to run the risk of having their computers compromised by hackers.

Fully installed, Microsoft Student 2006 gobbles up more than 4 Gb. That's a lot - even in an age of ever cheaper storage. Most homesteads still sport PCs with 20-40 Gb hard disks. This makes the Encarta less suitable for installation on older PCs and on many laptops. Despite the hype, relatively few users possess DVD drives (but those who do, find the entire encyclopedia available on one DVD).

Finally, there is the question of personal creativity and originality. Luckily, MS Student does not spoon-feed its users. It does not substitute for thinking or for study. On the contrary, by providing structured stimuli, it encourages the student to express his or her ideas. It does not do the homework assignments for the student - it merely helps rid them of time-consuming and machine-like functions. And it opens up to both student and family the wonderful twin universes of knowledge: the Encarta and the Web.

Microsoft's Encarta and MS Student 2007

July, 2006

Microsoft Encarta Premium 2007

While Microsoft Encarta Premium 2006 marked Microsoft's commitment to the Web - Microsoft Encarta Premium 2007 marks its commitments to its own technology. The new Encarta relies on Microsoft's powerful, flexible, scalable, and adaptable .Net Framework 2.0. There is a price to pay, of course: the time it takes to install the product is much longer and the user is henceforth prompted to constantly download security updates from Microsoft. It is also recommended to turn off your firewall and anti-virus products during installation.

More than ever, the Encarta is a breathtaking resource. With 68,000 articles (compared to 64,000 last year), it is much expanded (though about 1000 photos and illustrations and 500 music and sound clips were removed from this edition). Certain, resource-hogging features disappeared from last year (for example: the Read Aloud and Live News functions).

The Encarta caters effectively (and, at \$30-50, affordably) to the educational needs of everyone in the family, from children as young as 7 or 8 years old to adults who seek concise answers to their queries. It is fun-filled, interactive, and colorful. Kids have their own encyclopedia-within-encyclopedia, dubbed Encarta Kids with age-appropriate, appetizingly presented content and games to boot!

The 2007 Encarta's User Interface is far less cluttered than in previous editions. Content is arranged by topics and then by relevancy and medium. Add to this the Encarta's Visual Browser and you get only relevant data in response to your queries. The Encarta Search Bar, which was integrated into the product two years ago, and is resident in the Task Pane even when Encarta is closed, enables users to search any part of the Encarta application (encyclopedia, dictionary, thesaurus, etc).

The Encarta's newish Web Companion obtains search results from all the major search engines without launching any additional applications (like a browser). Content from both the Encarta and the Web is presented side by side. This augmentation explicitly adopts the Internet and incorporates it as an important source of reference.

I am not sure how Microsoft solved the weighty and interesting issues of intellectual property that the Web Companion raises, though. Copyright-holders of Web content may feel that they have the right to be compensated by Microsoft for the use it makes of their wares in its commercial products.

Encarta would do well to also integrate with new desktop search tools from Google, Microsoft, Yahoo, and others. Users should be able to seamlessly access content from all over - their desktop, their encyclopedias, and the Web - using a single, intuitive interface.

The Encarta Premium includes a dictionary, thesaurus, chart maker, searchable index of quotations, games, Discovery Channel videos, 25,000 photos and illustrations, 2500 sound and audio clips, hundreds of maps and tables (with a staggering 1.8 million map locations), and 300 videos and animations. It incorporates numerous third-party texts and visuals (including hundreds of newspaper articles and a plethora of Scientific American features).

The Encarta is augmented by weekly or bi-weekly updates and the feature-rich online MSN Encarta Premium with its Homework Help offerings. Unfortunately, the Encarta still conditions some of its functions - notably its research tools and updates - on registration with its Plus Club. Moreover, last year Encarta released only 26 updates, compared to its annual average of 50-60.

The Encarta is the most comprehensive, PC-orientated reference experience there is. No wonder it has an all-pervasive hold on and ubiquitous penetration of the child-to-young adult markets. Particularly enchanting is the aforementioned Encarta Kids interface - an area replete with interactive quizzes, pictures, large icons, hundreds of articles, and links to the full

version of the Encarta. A veritable and colorful sandbox. Those kids are going to get addicted to the Encarta, that's for sure!

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Inevitably, in such a mammoth undertaking, not everything is peachy. A few gripes:

As I said, installation is not as easy as before. The Encarta 2007 makes use of Microsoft's .Net technology. As most home computers lack it, the installer insists on adding it to the anyhow bloated Windows Operating System. There is worse to come: the .Net version installed by Encarta 2007 is plagued with security holes and vulnerabilities. Users have to download service packs and patches from Windows Update if they do not wish to run the risk of having their computers compromised by hackers.

Fully installed on the hard disk, the Encarta Premium 2007 gobbles up less than its predecessors but still a whopping 3 Gb. That's a lot - even in an age of ever cheaper storage. Most homesteads still sport PCs with 20-40 Gb hard disks. This makes the Encarta less suitable for installation on older PCs and on many laptops.

The Encarta DVD 3-D tours have improved but they still hog computer resources and are essentially non-interactive. Is it worth the investment and the risk to the stability and performance of the user's computer?

The Encarta tries to cater to the needs of challenged users, such as the visually-impaired - but it is far from doing a good or full job of it.

The dictionary has been greatly improved in this edition. Actually, the Encarta 2007 comes equipped with five foreign language dictionaries and verb conjugating applications. Still, the atlas, English language dictionary, and thesaurus incorporated in the Encarta are somewhat outdated. Why not use a more current - and dynamically updated - offering? What about dictionaries for specialty terms (medical or computer glossaries, for instance)? The Encarta's New English Dictionary dropped a glossary of computer terms it used to include back in 2001. All's the pity.

But that's it. Encarta is a must-buy (especially if you have children). The Encarta is the best value for money around and significantly enhances your access to knowledge and wisdom accumulated over centuries all over the world. The amount and quality of content squeezed into a \$50 package (before rebate) defies belief. I am a 45 years old adult but when I received my Encarta Premium 2007, I was once more a child in a land of wonders. How much is such an experience worth to you?

Microsoft Student 2007

The previous versions of Encarta included a host of homework tools. Last year, these have been made into a separate product called Microsoft Student. It has now been gainfully

repackaged and very much enhanced. Among the new or revamped features: free online access to MSN Encarta Premium, Step-by-Step Math Solutions calculator, Step-by-Step Math Textbook Solutions, Triangle Solver, Equations Library, tutorials, and foreign language help. MS Student comes replete with the entire Encarta Premium encyclopedia!

Homework assignments are the bane of most students I know (not to mention their hard-pressed and nescient parents). This is mainly because of the tedious and mind-numbing chores of data mining and composition. Additionally, as knowledge multiplies every 5-10 years, few parents and teachers are able to keep up.

Enter Microsoft Student 2007 - a productivity suite which, as we mentioned, includes the Encarta Encyclopedia, English and foreign language dictionaries, thesaurus, quotations library, assignment templates, tutorials, graphing calculator software and a Web Companion.

Similar to the Encarta, MS Student's Web Companion obtains search results from all the major search engines without launching any additional applications (like a browser). Content from both the Encyclopedia and the Web is presented side by side. This augmentation explicitly adopts the Internet and incorporates it as an important source of reference - as 80% of students have already done.

I am not sure how Microsoft solved the weighty and interesting issues of intellectual property that the Web Companion raises, though. Copyright-holders of Web content may feel that they have the right to be compensated by Microsoft for the use it makes of their wares in its commercial products.

MS Student would do well to also integrate with new desktop search tools from Google, Microsoft, Yahoo, and others. Students will benefit from seamless access to content from all over - their desktop, their encyclopedias, and the Web - using a single, intuitive interface.

MS Student's templates are actually clever adaptations of the popular Office suite of products - Word, Excel, and PowerPoint. They help the student produce homework plans and schedules, projects, book reports, presentations, research reports, charts, and analyses of problems in math, physics, and chemistry. Detailed step-by-step tutorials, Quick Starters, and pop-up toolbars (menus) guide the student along the way in a friendly, non-intrusive manner.

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MS Student 2007 is a great contribution to learning. Inevitably, it has a few flaws and glitches.

Start with the price. As productivity suites go, it is reasonably priced had its target population been adult professional users. But, at \$70-100, it is beyond the reach of most poor students and parents - its most immediate market niches.

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Fully installed on the hard disk, MS Student 2007 gobbles up less than its predecessors but still a whopping 4 Gb. That's a lot - even in an age of ever cheaper storage. Most homesteads still sport PCs with 20-40 Gb hard disks. This makes MS Student less suitable for installation on older PCs and on many laptops.

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Microsoft's Encarta and MS Student 2008

July, 2007

Microsoft Encarta Premium 2007

While Microsoft Encarta Premium 2006 marked Microsoft's commitment to the Web - Microsoft Encarta Premium 2007 marks its commitments to its own technology. The new Encarta relies on Microsoft's powerful, flexible, scalable, and adaptable .Net Framework 2.0. There is a price to pay, of course: the time it takes to install the product is much longer and the user is henceforth prompted to constantly download security updates from Microsoft. It is also recommended to turn off your firewall and anti-virus products during installation.

More than ever, the Encarta is a breathtaking resource. With 68,000 articles (compared to 64,000 last year), it is much expanded (though about 1000 photos and illustrations and 500 music and sound clips were removed from this edition). Certain, resource-hogging features disappeared from last year (for example: the Read Aloud and Live News functions).

The Encarta caters effectively (and, at \$30-50, affordably) to the educational needs of everyone in the family, from children as young as 7 or 8 years old to adults who seek concise answers to their queries. It is fun-filled, interactive, and colorful. Kids have their own encyclopedia-within-encyclopedia, dubbed Encarta Kids with age-appropriate, appetizingly presented content and games to boot!

The 2007 Encarta's User Interface is far less cluttered than in previous editions. Content is arranged by topics and then by relevancy and medium. Add to this the Encarta's Visual Browser and you get only relevant data in response to your queries. The Encarta Search Bar, which was integrated into the product two years ago, and is resident in the Task Pane even when Encarta is closed, enables users to search any part of the Encarta application (encyclopedia, dictionary, thesaurus, etc).

The Encarta's newish Web Companion obtains search results from all the major search engines without launching any additional applications (like a browser). Content from both the Encarta and the Web is presented side by side. This augmentation explicitly adopts the Internet and incorporates it as an important source of reference.

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Encarta would do well to also integrate with new desktop search tools from Google, Microsoft, Yahoo, and others. Users should be able to seamlessly access content from all over - their desktop, their encyclopedias, and the Web - using a single, intuitive interface.

The Encarta Premium includes a dictionary, thesaurus, chart maker, searchable index of quotations, games, Discovery Channel videos, 25,000 photos and illustrations, 2500 sound and audio clips, hundreds of maps and tables (with a staggering 1.8 million map locations), and 300 videos and animations. It incorporates numerous third-party texts and visuals (including hundreds of newspaper articles and a plethora of Scientific American features).

The Encarta is augmented by weekly or bi-weekly updates and the feature-rich online MSN Encarta Premium with its Homework Help offerings. Unfortunately, the Encarta still conditions some of its functions - notably its research tools and updates - on registration with its Plus Club. Moreover, last year Encarta released only 26 updates, compared to its annual average of 50-60.

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Microsoft Student 2008

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Enter Microsoft Student 2008: a productivity suite which includes English and foreign language dictionaries, thesaurus, quotations library, assignment templates, tutorials, graphing calculator software and a Web Companion. MS Student comes replete with the entire Encarta Premium 2008 encyclopedia and its dynamic atlas and provides online access to the feature-rich MSN Encarta Premium through October 2008.

The previous versions of Encarta included a host of homework tools. Two years ago, these have evolved into a separate product called Microsoft Student. Since then, it has been

gainfully repackaged and very much enhanced. This year, for the first time, MS Student can be downloaded from the Web or purchased as a standalone, packaged product (DVD only).

Among the new or revamped features: free online access to MSN Encarta Premium, Step-by-Step Math Solutions calculator, Step-by-Step Math Textbook Solutions, Triangle Solver, Equations Library, tutorials, and foreign language help.

To augment the performance of MS Student 2008, Microsoft offers "Learning Essentials": preformatted report and presentation templates and tutorials designed for Microsoft Office XP and later. MS Student's templates are actually clever adaptations of the popular Office suite of products: Word, Excel, and PowerPoint. They help the student produce homework plans and schedules, science projects, book reports, presentations, research reports, charts, and analyses of problems in math, physics, and chemistry. Detailed step-by-step tutorials, Quick Starters, and pop-up toolbars (menus) guide the student along the way in a friendly, non-intrusive manner.

The Ace in MS Student's deck is Microsoft Math. It is a seemingly endless anthology of tools, tutorials and instruction sheets on how to grasp mathematical concepts and solve math problems, from the most basic (e.g., fractions) to mid-level difficulty (e.g., trigonometric functions). And if this is not enough, there's free access to HotMath, an online collection of math study aides and problem solvers.

The graphing calculator is a wonder. It has both 2-D and 3-D capabilities and makes use of the full screen. Aided by an extensive Equations Library, it does everything except cook: trigonometry, calculus, math, charting, geometry, physics, and chemistry. And everything in full color! Triangles get special treatment in the Triangle Solver. The most vexing trilateral relationships and rules are rendered simple through the use of enhanced graphics. The Equation Library, though, is disappointing. It holds only 100 equations and calculus is sorely neglected throughout.

MS Student provides a powerful English-Spanish-French-German-Italian dictionary. It helps the student to translate and conjugate verbs. The synergy between this product and the impressive foreign language capabilities of MS Word creates an effective language laboratory which allows the user to study the languages up to the point of completing assignments using specialized foreign-language templates.

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Fully installed on the hard disk, MS Student 2008, like its predecessors, gobbles up a whopping 4 Gb. That's a lot - even in an age of ever cheaper storage. Most homesteads still sport PCs with 40-80 Gb hard disks. This makes MS Student less suitable for installation on older PCs and on many laptops.

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Microsoft's Student and Encarta Premium 2009

August 2008

Homework assignments are the bane of most students I know (not to mention their hard-pressed and nescient parents). This is mainly because of the tedious and mind-numbing chores

of data mining and composition. Additionally, as knowledge multiplies every 5-10 years, few parents and teachers are able to keep up.

Enter Microsoft Student and Encarta Premium 2009: a productivity suite which includes English and foreign language dictionaries (Spanish, French, German, and Italian); a thesaurus; a quotations and citation library; assignment templates; tutorials; a graphing and equations calculator software; and a Web Companion.

MS Student comes replete with the entire Encarta Premium 2009 encyclopedia and its dynamic atlas and provides online access to the feature-rich MSN Encarta Premium through October 2009. Ink Handwriting Support allows the user to work with Tablet PCs and Ultra-Mobile PCs and recognizes handwritten math problems.

There is little need to introduce the Encarta Encyclopedia: 62,000 articles; thousands of Web links, vetted by the encyclopedia's editors; videos, sound clips; interactive maps, including geopolitical, climatic, and topographical; 2-D and 3-D tours of historical events; a Dynamic Timeline of thousands of eras and events; and Encarta Kids for children under the age of 12.

Last year, Encarta released only 15 updates (compared to almost 50 the year before). This year started more auspiciously, with 3 updates and 3000 corrected or new articles added to the Encyclopedia in its first two months since its release in June.

The previous versions of Encarta comprised a host of homework tools. Three years ago, these have evolved into a separate product called Microsoft Student. Since then, it has been gainfully repackaged and very much enhanced. This year, MS Student can only be downloaded from the Web. It is no longer available as a standalone, packaged product.

Among the new or revamped features:

To augment the performance of MS Student 2009, Microsoft offers "**Learning Essentials**": preformatted report and presentation templates and tutorials designed for Microsoft Office XP and later. MS Student's templates are actually clever adaptations of the popular Office suite of products: Word, Excel, and PowerPoint. They help the student produce homework plans and schedules, science projects, book reports, presentations, research reports, charts, and analyses of problems in math, physics, and chemistry. Detailed step-by-step tutorials, Quick Starters, and pop-up toolbars (menus) guide the student along the way in a friendly, non-intrusive manner.

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All in all, MS Student 2009 is a great contribution to learning. Inevitably, it has a few flaws and glitches.

Start with the price. As productivity suites go, it is reasonably priced had its target population been adult professional users. But, at \$50-100 (depending on the country), it is beyond the reach of most poor students and parents: its most immediate market niches.

Fully installed on the hard disk, MS Student 2009, like its predecessors, gobbles up a whopping 3-4 Gb. That's a lot - even in an age of ever cheaper storage. Most homesteads still sport PCs with 40-80 Gb hard disks. This makes MS Student less suitable for installation on older PCs and on many laptops.

The Equation Library is disappointing, as it holds only 100 equations and calculus is sorely neglected throughout.

Finally, there is the question of personal creativity and originality. Luckily, MS Student does not spoon-feed its users. It does not substitute for thinking or for study. On the contrary, by providing structured stimuli, it encourages the student to express his or her ideas. It does not do the homework assignments for the student - it merely helps rid them of time-consuming and machine-like functions. And it opens up to both student and family the wonderful twin universes of knowledge: the Encarta and the Web.

[Return](#)

The Encyclopedia Britannica 2006-2010

September, 2005

The Encyclopedia Britannica 2006 (established in 1768) is a completely revamped product. Its interface is intuitive and uncluttered. It is far more fun to use. For instance, it now offers a date-based daily selection of relevant articles. The search box is persistent - no need to click on the toolbar's "search" button every time you want to find something in this vast storehouse.

The new Britannica's display is tab-based, avoiding the erstwhile confusing proliferation of new windows with every move. Most importantly, articles appear in full - not in sections. This major improvement facilitates finding relevant keywords in and the printing of entire texts. These are only a few of dozens of user-friendly alterations and enhancements. The 2006 edition is a breakthrough. The Britannica seemed to have finally got it entirely right.

The Britannica provides considerably more text than any other extant encyclopedia, print or digital. But its has noticeably enhanced its non-textual content over the years (the 1994-7 editions had nothing or very little but words, words, and more words).

The Britannica fully supports serious research. It is a sober assemblage of first-rate essays, up to date bibliographies, and relevant multimedia. It is a desktop university library: thorough, well-researched, comprehensive, trustworthy.

The Britannica's 80-100,000 articles (depending on the version) are long and thorough, supported by impressive bibliographies, and written by the best scholars in their respective fields. The company's Editorial Board of Advisors reads like the who's who of the global intellectual and scientific community.

The Britannica comes bundled with an atlas (and 287 World data Profiles of individual countries and territories), the Merriam-Webster Dictionary and Thesaurus, classic articles from previous editions, eleven yearbooks, an Interactive Timeline, a Research Organizer, and a Knowledge Navigator (a Brain Stormer).

In its new form, the Britannica is as user-friendly as the Encarta. Regrettably, it is updated only 2-4 times a year, a serious drawback, only partially compensated for by 3 months of free access to the its impressive powerhouse online Web site.

The Britannica is an embarrassment of riches. Users often find the wealth and breadth of information daunting and data mining is fast becoming an art form. This is why the Britannica incorporated the Brain Stormer to cope with this predicament. But an informal poll I conducted online shows that few know how to deploy it effectively.

The Britannica also sports Student and Elementary versions of its venerable flagship product, replete with a Homework Helpdesk - but it is far better geared to tackle the information needs of adults and, even more so, professionals. It provides unequalled coverage of its topics. Ironically, this is precisely why the market positioning of the Britannica's Elementary and Student Encyclopedias is problematic.

The current edition is fully integrated with the Internet. Apart from the updates, it offers additional and timely content and revisions on a dedicated Web site. The digital product includes a staggering number of links (165,808!) to third party content on the Web. The GeoAnalyzer (compares national statistical data and generates charts and graphs) is now Web-based and greatly enhanced.

The Britannica would do well to offer a browser add-on search bar and integrate with new desktop search tools from Google, Microsoft, Yahoo, and others. A seamless experience is in the cards. Users must and will be able to ferret content from all over - their desktop, their encyclopedias, and the Web - using a single, intuitive interface.

Having used the product extensively in the last two weeks and on different platforms and operating systems, I find myself entertaining some minor gripes:

The atlas, dictionary, and thesaurus incorporated in the Britannica are surprisingly outdated. Why not use a more current - and dynamically updated - offering? What about dictionaries for specialty terms (medical or computer glossaries, for instance)?

Despite considerable improvement over the previous edition, the Britannica still consumes (not to say hogs) computer resource far in excess of the official specifications. This makes it less suitable for installation on older PCs and on many laptops.

The Britannica now uses a new graphic and text renderer. On some systems, the user needs to modify his or her desktop settings to get rid of jagged fonts and blurry photos.

Moreover, despite the hype, relatively few users possess DVD drives (but those who do find the entire reference suite available on one DVD).

But that's it. Don't think twice. Run to the closest retail outlet (or surf to the Britannica's [Web site](#)) and purchase the 2006 edition now. It offers excellent value for money (less than \$50) and significantly enhances your access to knowledge and wisdom accumulated over centuries all over the world.

The Encyclopedia Britannica 2007 Opens to the Web

September, 2006

The Encyclopedia Britannica 2007 (established in 1768) is again a completely revamped product. The rate of innovation in the last two editions is impressive and welcome. Its interface is intuitive and uncluttered and it is great fun to use. For instance, it offers a date-based daily selection of relevant information and highly edifying interactive tours of articles and attendant media. The search box is persistent - no need to click on the toolbar's "search" button every time you want to find something in this vast storehouse of knowledge. Moreover, the user can save search results onto handy "Virtual Notecards".

The new Britannica's display is tab-based, avoiding the erstwhile confusing proliferation of new windows with every move. Most importantly, articles appear in full, not in sections. This major improvement facilitates the finding of relevant keywords in and the printing of entire texts. These are only a few of the numerous user-friendly alterations and enhancements. The Britannica seems to have got it entirely right.

Perhaps the most refreshing change is the Britannica's Update Center. Dozens of monthly updates and new, timely articles are made available online (subject to free registration). A special button alerts the user when an article in the base product has been updated. Regrettably, unlike in the Encarta, the updates cannot be downloaded to the user's computer or otherwise incorporated into the vast encyclopedia.

The Britannica provides considerably more text than any other extant encyclopedia, print or digital. But it has noticeably enhanced its non-textual content over the years (the 1994-7 editions had nothing or very little but words, words, and more words): it now boasts more than 17,000 images and illustrations and 700 video and audio clips.

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Despite considerable improvement over the previous edition, the Britannica still consumes (not to say hogs) computer resource far in excess of the official specifications. This makes it less suitable for installation on older PCs and on many laptops.

The Britannica uses a new graphic and text renderer. On some systems, the user needs to modify his or her desktop settings to get rid of jagged fonts and blurry photos.

But that's it. Don't think twice. Run to the closest retail outlet (or surf to the Britannica's [Web site](#)) and purchase the 2007 edition now. It offers excellent value for money (less than \$50) and significantly enhances your access to knowledge and wisdom accumulated over centuries all over the world.

The Encyclopedia Britannica 2008

September, 2007

The Encyclopedia Britannica 2008 (established in 1768), both Ultimate and Deluxe, builds on the success of its completely revamped previous editions in 2006 and 2007. The rate of innovation in the last two versions was impressive and welcome. It continues apace in this rendition with Britannica Biographies (Great Minds), Classical Music (500 audio files arranged by composer), and a great Workspace for Project Management (a kind of friendly digital den). Generous 6-12 months of free access to the myriad riches of the Britannica Online complete the package.

The Britannica comes bundled with an atlas (between 1600 and 2530 maps and 287 World Data Profiles of individual countries and territories), the Merriam-Webster Dictionary and Thesaurus, classic articles from previous editions, ten yearbooks, an Interactive Timeline with 4000+ indexed timeline entries, a Research Organizer, and a Knowledge Navigator (a Brain Stormer). All told, it offers a directory of more than 166,000 reviewed and vetted links to online content.

In its new form, the Britannica is as user-friendly as the Encarta. With monthly updates and the aforementioned 6-12 months of free access to its impressive powerhouse online Web site, it is bound to give the former close competition.

The Britannica's newest interface is even more intuitive and uncluttered than previously and is great fun to use. For instance, it generates a date-based daily selection of relevant information and highly edifying interactive tours of articles and attendant media.

When you enter even the first few letters of a term in the search box, it offers various options and is persistent: no need to click on the toolbar's "search" button every time you want to find something in this vast storehouse of knowledge. Moreover, the user can save search results onto handy "Virtual Notecards". Whole articles can be copied onto the seemingly inexhaustible Workspace.

The new Britannica's display is tab-based, avoiding the erstwhile confusing proliferation of windows with every move. Most importantly, articles appear in full, not in sections. This major improvement facilitates the finding of relevant keywords in and the printing of entire texts. These are only a few of the numerous alterations and enhancements.

Perhaps the most refreshing change is the Britannica's Update Center. Dozens of monthly updates and new, timely articles are made available online (subject to free registration). A special button alerts the user when an entry in the base product has been updated.

Regrettably, unlike in the Encarta, the updates cannot be downloaded to the user's computer or otherwise incorporated into the vast encyclopedia. Moreover, the product does not alert its user to the existence of completely new articles (e.g., the Kyoto Protocol). Only a manual scan of the monthly lists reveals newly added content.

Speaking of updates, one must not forget to dwell on the Britannica's unequalled yearbooks. Each annual volume contains the year in events, scientific developments, and everything you wanted to know about the latest in any and every conceivable field of human endeavor or nature. Close to 10,000 articles culled from the last 10 editions buttress and update the Encyclopedia's anyhow impressive offerings.

The Britannica provides considerably more text than any other extant encyclopedia, print or digital. But it has noticeably enhanced its non-textual content over the years (the 1994-7 editions had nothing or very little but words, words, and more words): it now boasts in excess of 21,000 images and illustrations and 900 video and audio clips.

The Britannica fully supports serious research. It is a sober assemblage of first-rate essays, up to date bibliographies, and relevant multimedia. It is a desktop university library: thorough, well-researched, comprehensive, trustworthy.

The Britannica's 80-100,000 articles (depending on the version) are long and thorough, supported by impressive bibliographies, and written by the best scholars in their respective fields. The company's Editorial Board of Advisors reads like the who's who of the global intellectual and scientific community.

The Britannica is an embarrassment of riches. Users often find the wealth and breadth of information daunting and data mining is fast becoming an art form. This is why the Britannica incorporated the Brain Stormer to cope with this predicament. But an informal poll I conducted online shows that few know how to deploy it effectively.

The Britannica also sports Student and Elementary versions of its venerable flagship product, replete with a Homework Helpdesk - but it is far better geared to tackle the information needs of adults and, even more so, professionals. It provides unequalled coverage of its topics. Ironically, this is precisely why the market positioning of the Britannica's Elementary and Student Encyclopedias is problematic.

The current edition is fully integrated with the Internet. Apart from the updates, it offers additional and timely content and revisions on a dedicated Web site. The digital product includes a staggering number of links (165,808!) to third party content and articles on the Web. The GeoAnalyzer, which compares national statistical data and generates charts and graphs, is now Web-based and greatly enhanced.

The Britannica would do well to offer a browser add-on search bar and to integrate with desktop search tools from Google, Microsoft, Yahoo, and others. Currently it offers search results through Google but this requires the user to install add-ons or plug-ins and to go through a convoluted rite of passage. A seamless experience is in the cards. Users must and will be able to ferret content from all over - their desktop, their encyclopedias, and the Web - using a single, intuitive interface.

Some minor gripes:

The atlas, dictionary, and thesaurus incorporated in the Britannica are still surprisingly outdated. Why not use a more current - and dynamically updated - offering? What about dictionaries for specialty terms (medical or computer glossaries, for instance)?

Despite considerable improvement over the previous edition, the Britannica still consumes (not to say hogs) computer resource far in excess of the official specifications. This makes it less suitable for installation on older PCs and on many laptops. If you own a machine with anything earlier than Pentium 3 and less than 4 Gb of really free space - forget it!

The Britannica uses a new graphic and text renderer. On some systems, the user needs to modify his or her desktop settings to get rid of jagged fonts and blurry photos. The software also seriously conflicts with security applications (especially anti-virus and firewall products). It is not compatible with the latest QuickTime, though it offers a patch to remedy the situation.

But that's it. Don't think twice. Run to the closest retail outlet (or surf to the Britannica's [Web site](#)) and purchase the 2008 edition now. It offers excellent value for money (less than \$50) and significantly enhances your access to knowledge and wisdom accumulated over centuries all over the world.

The Encyclopedia Britannica 2009

August, 2008

The Encyclopedia Britannica 2009 (established in 1768), both in its Ultimate (now also called "Student and Home") and Deluxe versions, builds on the success of its completely revamped previous editions in 2006-8. The rate of innovation in the last three versions was impressive and welcome. It continues apace in this rendition with Britannica Biographies (Great Minds and Leaders), Classical Music (500 audio files arranged by composer), and a great Workspace for Project Management (a kind of friendly digital den). Generous 6-12 months of free access to the myriad riches of the Britannica Online complete the package.

The Britannica comes bundled with an atlas (close to 1800 maps linked to articles and 287 World Data Profiles of individual countries and territories); the Merriam-Webster Dictionary and Thesaurus, augmented by a Spanish-English translation dictionary; classic articles from previous editions; eleven yearbooks; an Interactive Timeline with 4000+ indexed timeline entries; a Research Organizer; and a Knowledge Navigator (called The Brain or BrainStormer). All told, it offers a directory of more than 166,000 reviewed and vetted links to online content.

In its new form, the Britannica is as user-friendly as the Encarta. With a new A to Z Quick Search feature, monthly updates and the aforementioned 6-12 months of free access to its impressive powerhouse online Web site, it is bound to give the former tough competition.

The Britannica's newest interface is even more intuitive and uncluttered than previously and is great fun to use. It offers morsels of knowledge, some of it date-specific, appetizingly presented through a ticker tape of visuals that leisurely scrolls across the bottom of the screen plus highly edifying interactive tours of articles and attendant media.

When you enter even the first few letters of a term in the search box, it offers various options and is persistent: no need to click on the toolbar's "search" button every time you want to find something in this vast storehouse of knowledge. Moreover, the user can save search results onto handy "Virtual Notecards". Whole articles can be copied onto the seemingly inexhaustible Workspace.

The new Britannica's display is tab-based, avoiding the erstwhile confusing proliferation of windows with every move. Most importantly, articles appear in full, not in sections. This major improvement facilitates the finding of relevant keywords in and the printing of entire texts. These are only a few of the numerous alterations and enhancements.

Perhaps the most refreshing change is the Britannica's Update Center. Dozens of monthly updates and new, timely articles are made available online (subject to free registration). A special button alerts the user when an entry in the base product has been updated.

Regrettably, unlike in the Encarta, the updates cannot be downloaded to the user's computer or otherwise incorporated into the vast encyclopedia. Moreover, the product does not alert its

user to the existence of completely new articles, only to updated ones. It takes a manual scan of the monthly lists to reveal newly added content.

Speaking of updates, one must not forget to dwell on the Britannica's unequalled yearbooks. Each annual volume contains the year in events, scientific developments, and everything you wanted to know about the latest in any and every conceivable field of human endeavor or nature. About 10,500 articles culled from the last 11 editions buttress and update the Encyclopedia's anyhow impressive offerings.

The Britannica provides considerably more text than any other extant encyclopedia, print or digital. But it has noticeably enhanced its non-textual content over the years (the 1994-7 editions had nothing or very little but words, words, and more words): it now boasts in excess of 22-30,000 images and illustrations (depending on the version) and 900 video and audio clips. This is not to mention the Britannica Classics: articles from Britannica's most famous contributors—from Sigmund Freud to Harry Houdini, Marie Curie to Orville Wright.

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The Britannica's 84-103,000 articles (depending on the version) are long and thorough, supported by impressive bibliographies, and written by the best scholars in their respective fields. The company's Editorial Board of Advisors reads like the who's who of the global intellectual and scientific community.

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The Britannica also sports Student and Elementary versions of its venerable flagship product, replete with a Homework Helpdesk and interactive tutorials, but it is far better geared to tackle the information needs of adults and, even more so, professionals. It provides unequalled coverage of its topics. Ironically, this is precisely why the market positioning of the Britannica's Elementary and Student Encyclopedias is problematic: with Wikipedia and even the Encarta around, the Britannica's brand is distinctly adult and scholarly.

Still, the 2009 editions of both the Student and Elementary encyclopedias improve on the past in terms of both coverage and facilities: the **Homework Helpdesk** is a collection of useful homework resources including a video subject browse, online learning games and activities, online subject spotlights, and how-to documents on topics such as writing a book review. There are also **Learning Games and Activities**: hundreds of fun and interactive games and activities to help students with subjects like Math, Science, and Social Studies.

The current edition is fully integrated with the Internet. Apart from the updates, it offers additional and timely content and revisions on a dedicated Web site. The digital product includes a staggering number of links (165,808!) to third party content and articles on the Web. The GeoAnalyzer, which compares national statistical data and generates charts and graphs, is now Web-based and greatly enhanced.

The Britannica would do well to offer a browser add-on search bar and to integrate with desktop search tools from Google, Microsoft, Yahoo, and others. Currently it offers search results through Google but this requires the user to install add-ons or plug-ins and to go through a convoluted rite of passage. A seamless experience is in the cards. Users must and will be able to ferret content from all over - their desktop, their encyclopedias, and the Web - using a single, intuitive interface.

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The Britannica 2010 Victorious?

October, 2009

With the demise of Microsoft's [Encarta](#) (it has been discontinued) and the tribulations of the [Wikipedia](#) (its rules have been revamped to resemble a traditional encyclopedia, alienating its contributors in the process), the Encyclopedia Britannica 2010 (established in 1768) may have won the battle of reference.

The Encyclopedia Britannica 2010 Ultimate Edition (formerly "Student and Home Edition") builds on the success of its completely revamped previous editions in 2006-9. The rate of innovation in the last four versions was impressive and welcome. It continues apace in this rendition with Britannica Biographies (Great Minds, Heroes and Villains, and Leaders), Classical Music (500 audio files arranged by composer), and a great Workspace for Project Management (a kind of friendly digital den). Six months of free access to the myriad riches of the Britannica Online complete the package.

The Britannica comes bundled with an atlas (close to 1800 maps linked to articles and 287 World Data Profiles of individual countries and territories); the Merriam-Webster Dictionary and Thesaurus, augmented by a Spanish-English translation dictionary; classic articles from previous editions; twelve yearbooks (11,200 articles in total); an Interactive Timeline with 4000+ indexed timeline entries; a Research Organizer; and a Knowledge Navigator (called The Brain or BrainStormer). All told, it offers a directory of more than 166,000 reviewed and vetted links to online content.

In its new form the Britannica is user-friendly, with an A to Z Quick Search feature, monthly updates and the aforementioned 6 months of free access to its impressive powerhouse online Web site (more than 1 million additional articles and other items!).

The Britannica's newest interface is even more intuitive and uncluttered than previously and is great fun to use. It offers morsels of knowledge, some of it date-specific, appetizingly presented through a ticker tape of visuals that leisurely scrolls across the bottom of the screen plus highly edifying interactive tours of articles and attendant media.

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Speaking of updates, one must not forget to dwell on the Britannica's unequalled yearbooks. Each annual volume contains the year in events, scientific developments, and everything you wanted to know about the latest in any and every conceivable field of human endeavor, or Nature. About 11,200 articles culled from the last 12 editions buttress and update the Encyclopedia's anyhow impressive offerings.

The Britannica provides considerably more text than any other extant traditional encyclopedia, print or digital (a total of 59 million words). But it has noticeably enhanced its non-textual content over the years (the 1994-7 editions had nothing or very little but words, words, and more words): it now boasts in excess of 30,000 images and illustrations (depending on the version) and 900 video and audio clips. This is not to mention the

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The Britannica also sports Student and Elementary versions of its venerable flagship product, replete with a Homework Helpdesk, "how to" documents, and interactive games, activities, and math and science tutorials. Still, the Britannica is far better geared to tackle the information needs of adults and, even more so, professionals. It provides unequalled coverage of its topics.

Ironically, this is precisely why the market positioning of the Britannica's Elementary and Student Encyclopedias is problematic: compared to the Wikipedia, the Britannica's brand is distinctly adult and scholarly. The vacuum left by the Encarta (lamented) discontinuance, though, should make it easier to market the Student and Elementary versions (which are an integral part of the Ultimate Edition and not sold separately).

Still, the 2010 editions of both the Student and Elementary encyclopedias improve on the past in terms of both coverage and facilities: the **Homework Helpdesk** is a collection of useful homework resources including a video subject browse, online learning games and activities, online subject spotlights, and how-to documents on topics such as writing a book review. There are also **Learning Games and Activities**: hundreds of fun and interactive games and activities to help students with subjects like Math, Science, and Social Studies. Both versions are updated monthly with new online-only articles.

The current edition is fully integrated with the Internet. Apart from articles about new topics and personalities in the news, it offers additional and timely content and revisions on a dedicated Web site. The digital product includes a staggering number of links (165,808!) to third party content and articles on the Web. The GeoAnalyzer, which compares national statistical data and generates charts and graphs, is now Web-based and greatly enhanced.

The Britannica would do well to offer a browser add-on search bar and to integrate with desktop search tools from Google, Microsoft, Yahoo, and others. Currently it offers search results through Google but this requires the user to install add-ons or plug-ins and to go through a convoluted rite of passage. A seamless experience is in the cards. Users must and will be able to ferret content from all over - their desktop, their encyclopedias, and the Web - using a single, intuitive interface.

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Despite considerable improvement over the previous edition, the Britannica still consumes (not to say hogs) computer resource far in excess of the official specifications. This makes it less suitable for installation on older PCs and on netbooks. If you own a machine with anything earlier than Pentium 4, less than 1 Gb RAM, and less than 10 Gb of really free space, the Britannica would be clunky at best.

But that's it. Don't think twice. Run to the closest retail outlet (or surf to the Britannica's [Web site](#)) and purchase the 2010 edition now. It offers excellent value for money (less than \$40, with a rebate). For less than the price of an antivirus software and for a fraction of the cost of Windows 7, you will significantly enhance your access to the sum total of human knowledge and wisdom.

[Return](#)

Project Gutenberg's Anabasis

Also published by United Press International (UPI)

In October 2004, Project Gutenberg (PG) - the Web's first and largest online library of free electronic books - released a long-awaited DVD containing close to 10,000 of its titles. Since then, another 1000 texts were added to its burgeoning archives. The Project spawned numerous other Web sites. Some of them - such as Blackmask - offer free downloads and sell their own DVD with mostly Project Gutenberg eBooks in multiple formats. Others provide free browsers and library applications specific to PG's content.

The man behind the Project - and, thus, the inventor of the ebook in 1971 - is Michael Hart.

Always available to preach the gospel of free content and its benefits, he responded to UPI's questions, joined by Greg Newby, Chief Executive of the Project Gutenberg Literary Archive Foundation.

Q. In October 2003, you set a new target for Project Gutenberg of one million free ebooks by the year 2015. Are there so many books in the public domain? And what then?

Michael: Archimedes said, "give me a lever long enough, and I will move the world." Project Gutenberg (gutenberg.net) is just such a lever, enabling a single person to create something of immense value that is made available to millions of people. If we have reached a mere 1.5% of the world's population, we have already given away a trillion eBooks.

Project Gutenberg is a grass roots operation, never having had real funding or grants. For 30 years people said that we won't be around next year. When we started to get close to 10,000 eBooks, they finally stopped.

There are lots of pretend eBook operations, but none of them produce all of their eBooks themselves, or have 10,000 of their own eBooks that can be read by virtually any text reader and word processor

The next big step, after we have reached a million eBooks, will be to translate each of them into as many as 100 languages, thus making them available to an even larger audience.

Regarding the number of titles in the public domain, during the 20th Century, there were many years in which over 50,000 books were published and the rate has been increasing throughout. Certainly there were a million titles published before 1923 that we can get our hands on, not to mention non-book items such as newspapers, magazines, brochures and advertisements, court records and other government documents, unpublished manuscripts and diaries, music, film, photographs, audio, and other art forms.

Greg: My calculation, based on the US Library of Congress' copyright renewal records, is that there are about 1 million books published from 1923 - 1964 that are demonstrably in the public domain. We are seeking to "discover" these items. The copyrights of only 10% of all published items are ever renewed.

Q. Libraries on CD-ROMs are at least a decade old. Why did Project Gutenberg wait until now to issue its own DVD?

Michael: Because there was always someone out there willing to do it for us. Because CD burners and DVD burners finally got so cost effective that we could afford to give away this kind of media. Because today you can't buy a computer off the shelf without a DVD drive. Until now, physical media could not compete on a cost effective basis with Internet downloads.

Greg: We have some volunteers willing to create CD and DVD images and we now distribute them. But we hope to find many other channels to distribute our content for free or for a small fee.

Q. Why don't simple scans or raw OCR (optical character recognition) output qualify as ebooks? What is the technological future of ebooks - is it Machine Translation and, if yes, why?

Michael: Book scanning is outsourced half way across the world and the results are shoddy and often cannot be used as input for OCR programs, to create a text file, for instance.

In contrast, once a true eBook is created, it has more value than a paper copy, because it can be copied ad infinitum, sent all over the world, even to a billion readers, and can be the basis for hundreds of new paper and eBook editions, all at virtually no cost.

Moreover, people are not interested in scans. Some Project Gutenberg sites each hand out 10 million eBooks per year - impossible with scanned images or full text eBooks due to their bandwidth-consuming oversize.

The "scanners" want to be the only source for "their" books, even when those books are in the public domain - and are willing to claim copyright on the public domain works of Project Gutenberg in the process. They deny themselves true access to the public.

Our Unlimited Distribution Model calls for everyone to have a library of 10,000 eBooks, stored on a single DVD that costs only \$1. People find this appealing. There are perhaps 10,000 volunteers to create our kind of ebooks - against only a few hundred people, all paid, working to create libraries of scans.

Additionally, the huge scan files hold just a single book, are not searchable, cannot be copied, indexed, or cited by off the shelf applications, typos can't be corrected, and are not truly portable due to their size.

Project Gutenberg eBooks can be read in any manner the reader chooses - favorite fonts, margination, number of lines per page can all be modified. The reader becomes his or her own publisher. People with disabilities can use a speech engine to read the texts aloud. The visually challenged can change the font size. This is impossible to do with scans.

With CD burners available for under \$15, and DVD burners for \$100, with blank media so cheap - the cost of individual books becomes literally "too cheap to meter." And that is the whole point of the Project Gutenberg eBook library.

Greg: eBooks are editable and suitable for creating derivative works. They are not intended to be a depiction of a printed artifact, but a direct means of experiencing the author's writing. Today's best OCR still makes (on average) several errors per page of text, and requires human intervention to handle things like page headings and footnotes.

We plan to make PG's ebooks easily transformable among different digital formats - XML, HTML, PDF, Braille, audiobooks, TeX, RTF and others. Features - such as fonts, or background colors - will be selectable. Machine translation (MT) will be another of these "formats", but it is currently technologically premature and immature.

In cooperation with partner organizations in Europe and elsewhere, we hope to help to develop better MT software. We are supporting a project in Europe to augment MT with human translation, much as today's OCR must be helped by human proofreaders to achieve a low error rate.

Q. How would you suggest to balance the need to protect the intellectual property rights of authors and the need to disseminate knowledge?

Michael: The World Intellectual Property Organization (WIPO), in cahoots with commercial interests, leave no quarter for anyone, and seem to want permanent copyright.

How do you achieve balance with someone who wants it all?

Originally, copyright came about because the Stationers' Guild wanted to entrench their monopoly on the written word after it was shattered by the Gutenberg Press. Similarly, in the United States, every copyright extension has had the same purpose, to destroy the effectiveness of a new publishing technology.

The 1909 Copyright Act destroyed the reprint houses made possible by the new steam and electric presses. The 1976 Copyright Act was enacted merely to stifle the effect of the Xerox machine. The 1998 Copyright Act was a response to the effects of the Internet. When it is difficult to make copies, it is legal because only the rich can do it. As soon as it becomes easy enough for the masses to have copies it is made illegal!

Greg: Publishers and media houses are adept at appropriating the intellectual property rights of authors for their own profits. They are insensitive to the social contract of copyright that should result in the release of items to the public domain after a reasonable period. Life of the author + 70 years is not a reasonable period, neither is 95 or 120 years after the creation of the copyrighted work.

Only a fraction of the items currently under copyright are actually available, from anyone at any price. The only benefit accrues to media producers, who restrict the quantity of available prior materials so that their new material is more likely to be purchased.

Q. The commercial ebook industry is going through a bloodbath. Cracked versions of the newest books are available online. Do you believe that ebooks, by nature, should be free - or is there a place for commercial digital content?

Greg: I favor the development of a commercial eBook industry. Project Gutenberg should be seen as a benefit to that industry, not an adversary. Similarly, I see commercial eBooks as being able to benefit Project Gutenberg, simply by getting more people to read eBooks.

The industry is a victim of its own incompetence. They did not suffer from a lack of publicity or advertising, but from a lack of usability, standard formats, and sufficient content. They also adopted a crippling cost model that artificially keeps the price of a new hardcover at \$20 or so, and a crippling industry model that necessitates enormous overhead to get their ever-decreasing catalog of items, printed on dead trees, delivered to shopping malls.

Fear of illicit copying (music and video) seems to dominate their thinking. At the same time, the leading organizations (the Author's Guild, the MPAA and the RIAA) are seeking to reduce the realm of fair use. Had these organizations embraced fair use, and introduced reasonable products at reasonable prices, they would not have needed to worry so much about piracy.

The failure of the eBook is the failure of the industries behind it, not the failure of the idea or lack of a market. I think it will take new thinkers, and new companies, to garner success.

Michael: Most of the bloodbath I have seen was among the commercial hardware eBook industry, people who wanted to control the reading habits of their customers, who did not want them to read anything that was not paid for and delivered by same commercial interests. When upgrades turn into downgrades to WIPOut access to public domain eBooks that used to be accessible before - that is a "Bad Thing."

The beauty, the purpose, of eBooks is to re-create the Gutenberg Press. Books whose replication and dissemination all over the world cost nothing, that require no deforestation, warehousing and shipping, that do not end up in the landfills of the world.

The purpose of eBooks is to create a library anyone can carry, weighing under one ounce per ten thousand volumes on standard writable DVDs, or one ounce per 25,000 books on double sided or double leveled DVDs. One kilo of these newer DVDs can hold 1,000,000 eBooks!

And I plan to have just such double sided DVDs to hand out for the holidays two years from now. . . .

The Ubiquitous Project Gutenberg

Interview with Michael Hart, Its Founder

November 15, 2005

[Michael Hart](#) conceived of electronic books (e-books) back in 1971. Most pundits agree that in the history of knowledge and scholarship, e-books are as important as the Gutenberg press, invented five centuries ago. Many would say that they constitute a far larger quantum leap. As opposed to their print equivalents, e-books are [public goods](#): cost close to nothing to produce, replicate, and disseminate. Anyone with access to minimal technology or even the oldest computers can read e-books.

Hart established [Project Gutenberg](#) - a repository of tens of thousands of public domain texts, freely available online. It is the largest and most comprehensive of its kind and has spawned numerous imitators, emulators, and mirror sites. E-books became a mainstream item with giant commercial enterprises - from Microsoft through Yahoo and Amazon to Google - entering the fray.

"Now that e-books are becoming mainstream, the giant commercial enterprises such as Google, Yahoo, Microsoft, Amazon and Random House are attempting to co-opt the e-book world from its 'Unlimited Distribution' origin to the old 'Limited Distribution' paradigm of the common business plan." - says Hart.

The Industry

1. As the man who pioneered e-books, how do you feel about Google Print Library, MSN Book Search, Wikibooks, and Yahoo's Open Content Alliance? Do you feel vindicated - or unjustly ignored?

A. Actually both, and quite thoroughly in both cases.

Each time an organization claims to have invented eBooks or eLibraries, I feel both vindicated and ignored, not that either one of these is new.

However, vindication, for me, comes from the bottom up, not the top down.

Project Gutenberg is the perfect example of a "grass roots" opposite of "The Trickle-Down Theories" that run the world today. We are truly, "Of the people, by the people, for the people."

We are truly a "Trickle-**UP**" project, which has been virtually ignored simply because of those who follow the first rule of reporting:

"Follow The Money" can never follow Project Gutenberg, since we've never had any money whatsoever.

However, if we **DID** get just a penny for every one of the trillion plus eBooks we have given away, based on reaching just 1% of the population, we would have enough to buy out Donald Trump, and the press would beat our doors down to give us coverage.

Still, it is **MUCH** more important to show that Project Gutenberg **has** changed the world. . .without money. . .without being co-opted by the Big Boys, simply by continuing to do this job for 35 years.

Today you can get over 50,000 titles from the Project Gutenberg sites, with no hassle, no money, no cookies, many even with no Internet. (via SneakerNet - This is when you put on your sneakers to run across the street with a CD-ROM or DVD.

Our target audience is the person on the street, not the ivory tower scholars, who all want to take over how our books should look, and not the corporations, who will only want to take over in the same way they took over music downloads only **AFTER** they proved to be successful.

Most business plans target the 1% of the population that is most geared towards their product, and this is why they consider a "million seller" to be a great success, while Project Gutenberg targets 100 million as a reasonable success.

Most business plans are elitist by their very nature, as they target an extremely small portion of the population. Project Gutenberg was a new business plan, targeting virtually everyone and it has proven to be the most successful plan of how to use the Internet.

Google?

Google made lots of predictions and promises: "Today is the day the world changes,"

But as of now, Google hadn't really even gotten started, with only 3 downloadable eBooks we could find. However, in response to Yahoo's Open Content Alliance, Google had to finally start releasing books, over 300 days into their project.

I would have **LOVED** to see Google put up 10,000 eBooks per week in the 10 months since their zillion dollar media blitz last December 14th (2004). They would be now approaching their 500,000th eBook, and Project Gutenberg would be working on ways to distribute them even more widely, do more proofreading, more formats, and all the other things that would keep the ball rolling.

Yahoo?

Sad to say, the media, once burned, twice shy, seem to have pretty much ignored The Alliance. . .and Brewster Kahle, whom I **KNOW** could do more than Google has done, has ignored my requests for any information, so I can't tell you anything more than you've already heard.

Obviously, the real test of any such effort is not in the first 10 months, but perhaps in the last 10 months.

It would be ***GREAT*** to see the "10 million eBooks drive" end with 10 months in which millions of eBooks were created and put freely online but right now we have to wait to see how they do with the first few percent.

I feel a need to quote myself here, something I said on July 4th, 1971, when I first invented eBooks and thought about the repercussions:

"You will be able to hold the Library of Congress in one hand, but I am sure they will stop us from being able to do that." (Said at The Materials Research Lab, University of Illinois, in the Xerox Sigma V computer room)

2. How do you feel about e-book piracy? Is it partly a reaction to overly onerous copyright laws? Does PG work with intellectual property lawyers?

A. I used to mention in my emails that there were thousands of "Pirates' Coves" online, but not one of them did eBooks, and that we would know when eBooks had finally "made it" when such things came into existence, just as the sales of the first million selling book, Uncle Tom's Cabin, were largely due to pirated editions. Anyone who says the publishers' history doesn't include piracy, just isn't looking. Pirated editions of Uncle Tom did the same for the publishing industry as Napster did for the music download industry.

As for the book industry, the news media is constantly filled with stories about how a gallon of gas that was \$.25 in 1955 has gone up 10 times over, but the price of paperbacks that were \$.25 in 1955 is now \$10, not \$2.50, about 40 times as much, yet this is never mentioned. I can only remark here that readers of these books have been victims of price increases four times as much as drivers. Yet, you never once have seen a news story about the high prices book stores are charging as compared to gas stations, have you?

So, some piracy indeed has to do with the price of books spiraling out of control and out of the reach of many readers.

The real question is: "Who is the victim of piracy here?"

Is it the publishers, who have spent a billion dollars to make you think so - or the public, who is paying 4 times as much for paperback books as for gas, when they were the same price when paperbacks first came out?

Obviously, as I mentioned earlier, some piracy has to do with translations that aren't available to the public, and some of it thrives in places where no legitimate copies are available at all. I have been to locations in Asia and Europe where the publishers simply don't care to sell - no matter how hard one looked - and then they complain that someone is making copies.

In the US is it legal for libraries to make copies for patrons when there is no copy readily available, either due to being hard to get or because the price is too high. I presume this might also be the case in other countries.

I think you will find this in Section 108 of the US Copyright Law.

Obviously when materials are not readily available, people might be expected to take things into their own hands as the law above obviously provides for.

As far as our "legal eagles" go, each Project Gutenberg has guidelines to stay within their local copyright. The really hard copyright research is handed over to our legal experts.

3. Do you think that Project Gutenberg - the largest online repository of public domain and copyrighted books - threatens the publishing industry's and media conglomerates' vested interests? PG is now distributed on DVD as well. Can this be construed as an incursion into traditional publishers' turf? Is disintermediation on the cards - the blurring of lines between author, publisher, and reader?

A. The publishers view any competition as an incursion on their turf, particularly the expiration of any copyrights, whether the books were still in print or not.

The publishers want to be the **ONLY** source of information, and to make it available on a "pay per" basis, so the greatest effect of these copyright extensions is not to have **MORE** books in bookstores, but **FEWER**, as that new copyright law prevents us from having public domain editions from the millions of books covered by the new copyright terms.

If people knew the copyright laws were being manipulated each time a new technology comes along that **COULD** actually bring the public domain to the masses, then they probably would say or do something about it. But copyright laws are enacted quietly and behind smokescreens. The US Copyright Act of 1998 was passed in the same 24 hours as President Clinton was impeached, and behind closed doors - I tried to testify - with a voice vote only so there would be no voting record. Thus, a common person would never have heard about it. **Even I**, who was trying to go testify, didn't learn about it for three weeks after the fact.

Every time a new technology was invented that would stop the publishers' monopoly, copyright laws were enacted to stifle it. After all, the first copyright was simply reactionary political maneuvering by The Stationers' Guild to get their monopoly over the written word back, and the same reactionary politics caused the US Copyright Acts to counteract steam printing presses, electric printing presses, the Xerox machine, and now the Internet.

US Copyright Acts were enacted:

1831 to stop the first high speed steam printing press of 1830 and because the first 28 year copyrights from the 1790 Copyright Act were starting to expire. Heaven forbid a copyright should expire!

1909 to stop electric presses from reprinting public domain works, etc.

1976 to stop public domain from flowing through xeroxes

1998 to stop public domain from flowing through the Internet

Every time **WE** could copy the public domain, they extend copyright time after time after time.

It couldn't **BE** any more obvious, except that the media won't say anything to us about copyright, so how could we know. . .it's not taught.

We have been threatened with a number of lawsuits, mostly by lawyers who seem to know very little about copyright. After we explained what we are doing, under which laws, it turns out they were just "blowing smoke" at us, trying to make us honor rights they don't have, with any legal explanation of what law[s] would give them rights over the material in question.

We're thinking of starting the OED, Oxford English Dictionary, and we expect more smoke from them, since they reacted this way at our initial announcement of this years ago, and threatened us when we posted "The Oxford Book Of English Verse," but they went away after getting me called on the carpet by a local University of Illinois Chancellor who happened to be Tom Cruise's uncle, and so worth the visit. By the way, this fellow was so Luddite he said he would quit the day he had to use e-mail.

We don't have any affiliation with the UI, but Oxford was going to use all the muscle they could muster, we'll see what they do when we do our first OED posting.

Regarding the DVD, anything that is free can be said to threaten that which is not free, just as anything that is not free can be said to threaten that which is free. If you study the history of copyright, this will become quite obvious.

As for disintermediation, it has been there all along. If you have computers you can be a publisher, an author, a reader. . .with a potential audience larger than any paper medium. Recently this has been exemplified by the first million selling music download by Gwen Stefani. . . Just think what is going to happen when we have our first million selling music download that isn't run through a major music label! Think it can't happen? Just watch, and remember what happened after Dido's initial CD flopped with no push from her label: it became a multimillion seller after it was sampled in that famous music video. Not to mention that Lisa Loeb had a million seller on CD without ever being signed to a label. The day is coming when artists, musicians, authors, and other artists will be free from the contracts of the publishing industry that give them \$50,000 out of each million dollars in sales.

4. Books are now being read on more platforms than ever - PDAs, iPods, cell phones, and even Sony Play Stations. How does this affect the very definition of the book? In other words, what is the future of the book in terms of format?

A. My own view has always been to support as many ways to read eBooks as possible, so this doesn't change anything about my definition of eBooks.

I **LOVE** it when I get an email from someone reading a PG eBook in Urdu on a cell phone in the Serengeti Plain in Africa!

THAT is what PG is all about!!!

We just added our 47th language at <http://www.gutenberg.org> and we have 104 languages at <http://www.gutenberg.cc> and 65 languages at <http://pge.rastko.net> (Project Gutenberg Europe), and are coming up on 500 eBooks at PG of Australia.

(BTW, that 47th language above, is from New South Wales, Australia!). I can't wait until I get an email from someone reading in Kamilaroi!

Regarding the various formats and platforms:

We are working on a system to create the eBooks in an XMLish format that can be converted into dozens of other formats, on the fly, so that anyone can instantly get any of our eBooks in any popular format.

Usually there are Project Gutenberg eBooks available for any new platform, such as the iPod, only a week after it comes out. We can't take credit for this, our readers and volunteers are the ones to come up with these instant versions, and who come up with nearly everything Project Gutenberg does.

My own contribution is now mainly to hold things together, to make eBooks really take off, to make sure everyone can get tens of thousands of free eBooks, someday tens of millions.

5. What is the most important thing you have learned in the 35 years that you have spent considering the world of eBooks?

I would have to say the most important thing I learned in the past 35 years of thinking about eBooks is that the underlying philosophy since time immemorial is:

"It is better if *I* have it, and *YOU* do *NOT* have it."

The Philosophy of Limited Distribution.

The primary quality of eBooks is that everyone can have them.

The philosophy of Unlimited Distribution.

This is perhaps the largest paradigm shift possible in world thought, shifting from the ideal that all things can be had only in limited supply ("supply side economics") to a new ideal that things can be produced such that everyone can have all they want.

With eBooks, everyone can have all they want without any effort to limit what other people can have. Before eBooks this was only possible with the air supply.

The real question is going to become more and more obvious as we move closer and closer to the technology of The Star Trek Replicator.

What will happen when *EVERY*one *CAN* have every*THING*???

Will they pass laws against that, too???

6. What should be the role of government in all this?

We have had governments for ages that have *SAID* they would be delighted to feed, clothe, house, and educate the world, if it were not so expensive.

Yet for 35 years no government has taken the steps to provide an electronic public library for the people. Add to this the number of academic institutions, cities, states, and nations, as well as charities, and you begin to realize that eBooks in some sense are being ignored by thousands of institutions who *SAY* their interest lies in providing for the masses.

We have been capable of bringing every word ever written to a wider audience than ever before for years, but the truth is a movement to deny access to this information has been underway for even longer in the form of continuous copyright extensions.

The prime example, obviously the one I name my own work after when I started Project Gutenberg, is The Gutenberg Press. Before Gutenberg the average book cost as much as the average family farm, and thus was out of the question for the average person on the street, much less for the even more persons who lived in places that didn't have any paved streets. Books were virtually inaccessible before The Gutenberg Press, other than to the elite of wealth, education, and religion.

Not only were books inaccessible to the person on the street, but even if they could manage to get a book the vast majority couldn't even come close to reading it. This provided a great wall insulating Haves from Haves-not. The Haves could read, the Haves-not could not read, and the advantage to the Haves is incalculable.

If you look at the attitudes toward Unlimited Distribution of eBooks you will find that the primary motivation here is wall preservation: preserving Haves and Haves-not as classes in a time when billions could have every word ever written.

There have been well over a billion computers made. There have been one billion cell phones added since the beginning of last year, and another billion, or more, may be made before the end of next year, and each is going to be capable to serve an eBook reader. And this does not include millions of PDAs, iPods, etc., much less millions of game consoles that can be used for eBooks.

The truth is that there have been enough eBook capable devices made that everyone who can read could have one and still some would be left over.

At the time of The Gutenberg Press, hardly anyone could read, and yet it would have been impossible to deliver one copy for each of them, of whatever your favorite book was. But **AFTER** Gutenberg the number of books printed each year was greater than the population of the places that made them. Books, and thus literacy, had finally come to the masses.

However, this did not appeal to those who had previously held monopoly power over all publication: The Stationers Company.

By the time The Gutenberg Press had gotten a strong foothold, publishing millions of books per year, The Stationers had bid for new laws to make all publication, other than their own, a violation of the law.

They did this in two very powerful ways:

1. Everyone else's printing presses were declared illegal.
2. A "copyright" patent was granted The Stationers, to "own" the only license for publication of all words ever written.

The first few attempts at such laws were met with such hatred that they were never enforced, and finally were withdrawn.

However, after over 150 years of trying to convince dozens of courtiers and monarchs, and failing, "The Stationers Company" was finally granted a royal patent, and became the only legal operators of the dreaded Gutenberg Press that had ruined such monopoly powers they had had since the dawn of time

Project Gutenberg

7. Is PG self-financing? Does it rely on donations? Does it receive any support or sponsorship from publishers and authors?

A. We don't really deal with money all that much or with financing as most people see it. We are nearly all volunteers, so there is very little in the way of finances. We rely more on donations of time and energy than on donations of money. I, myself, haven't received my monthly paycheck for about 2.5 years.

We don't receive any corporate sponsorship, or the various grants you hear about for making digital libraries.

In fact, just this week, I received a copy of a small magazine about eBooks that mentioned a conference of some 30 eBook makers, but did not mention Project Gutenberg at all. Interestingly enough, they included a poster of a few dozen logos of eBook makers, and it appears they cut off the poster exactly where the words "Project Gutenberg" were in our own logo.

They **TALK** about global information sharing, but they are really a collection of insiders doing insider things, and they are not really interested in getting eBooks to the common person, but rather mostly to those who are well-read and being well-educated already. In this sense, I agree with those who say there is still a great deal of Digital Divide.

However, we aren't going to go under, either, as they always say we will. Those who are used to living with no money, don't depend on it.

8. What are the legal and operational relationships between PG, PG Australia, PG Europe, and Distributed Proofreaders? How does PG collaborate and fit in with P2P file sharing networks such as BitTorrent?

A. There are no legal or operational relationships that I know of, we don't even email each other very often. . .not for months at a time. Project Gutenberg is only registered as a trademark in the US and, as far as I know, we have no legal control over

it in other countries, though the other Project Gutenberg efforts have been mostly very nice about using it the same way we do.

Regarding P2P networks, we pretty much allow anyone to do filesharing with our eBooks, as long as they aren't charging anything. . .it's not something specific to BitTorrent or any specific system. We do happen to run both BitTorrent and provide MagnetLinks (p2p) ourselves, but we're open to essentially any file sharing. Although we have a rather lengthy trademark licensing policy, it allows essentially any non-commercial use, including p2p and other filesharing methods.

9. What is the future role of machine translation in PG and other e-text databases?

A. This is perhaps the most important question you have raised, other than the issue that copyright will become permanent, and then we won't have any more public domain entries to work with.

My personal prediction is that when we have 10 million eBooks online, MT (Machine Translation) will be about where OCR (Optical Character Recognition) was when the world first started to become really aware of Project Gutenberg in 1989, some 16 years ago.

Then the next big project will be to translate those 10 million books into 100 different languages, so we will have a billion books to send to a billion potential readers. . . . For those who love big numbers, that's a *QUADRILLION* books given away.

10 million titles in 100 languages = 1 billion books

1 billion books to 1 billion people = 1 quadrillion books

10. What are you, at PG, planning for your 35th anniversary on July 4, 2006?

We have only 7 months left to the 35th Anniversary of Project Gutenberg. If you have any particular ideals or ideas you would like to have included in these events surrounding July 4th, 2006, please let me know so I will be able to coordinate efforts to insure they will be all ready to go for a timely release and maximum dispersals to our various audiences.

These would hopefully include:

I. The 35th Anniversary Of Project Gutenberg

II. The 20,000th Title Added at <http://www.gutenberg.org>

III. The 50,000th Title Added at <http://www.gutenberg.cc>

IV. The 500th Title was just added at Project Gutenberg of Australia

V. The 500th Title Added at Project Gutenberg of Europe

VI. The xxth Title Added at Project Gutenberg of Canada

VII. The Grand Opening of Project Gutenberg of the Philippines

VIII. The Official Release of the first "Million Dollar DVD"

In closing, I would like to say that we stand now at the *REAL* Digital Divide. . .the choice between free copying, from a free public domain. . .and only commercial copying from commercial sources.

When everything is copyrighted, patented, trademarked, etc., what difference will it make if someone invents a Replicator, if it is illegal to copy anything?

Will the copyright laws continue to be extended over and over and over and over again?

Or will there someday be a world in which the promise of new technology is not reined in, or reigned over, by an old system designed to preserve the separation between the Haves and the Haves-not?

[Return](#)

The Content Downloader's Profile

April, 2005

Interview granted to Tim Emmerling, a student at Eastern Illinois University.

Q. What do you know about people illegally downloading files over the internet?

A. I know what everyone knows from being exposed to the news media and to lawsuits filed by publishers: the phenomenon is widespread and most of the millions of exchanged files are music tracks and films (though book rip-offs are not unknown as well).

Q. Why do you think people are taking part in these electronic transactions? Does the cost of purchasing the media come into play?

A. It's a complex canvass of motivations, I guess. Many media products (especially in developing and poor countries) are overpriced in terms of the local purchasing power. Illegally downloading them is often an act of protest or defiance against what disgruntled consumers perceive as excessive profiteering. It may also be the only realistic way to gain ownership of coveted content.

The fact that everything - from text to images - is digital makes replication facile and enticing. Illegal downloading also probably confers an aura of daring and mystique on the "pirates" involved (whose life may otherwise be a lot drearier and mundane).

Additionally, these products resemble public goods in that they are nonrivalrous (the cost of extending the service or providing the good to another person is (close to) zero) and largely nonexcludable.

Most products are rivalrous (scarce) - zero sum games. Having been consumed, they are gone and are not available to others. Public goods, in contrast, are accessible to growing numbers of people without any additional marginal cost. This wide dispersion of benefits renders them unsuitable for private entrepreneurship. It is impossible to recapture the full returns they engender. As Samuelson observed, they are extreme forms of positive externalities (spillover effects).

Moreover, it is impossible to exclude anyone from enjoying the benefits of a public good, or from defraying its costs (positive and negative externalities). Neither can anyone willingly exclude himself from their remit.

Needless to emphasize that media products are not public goods at all! They only superficially resemble public goods. Still, the fact that many books, music, and some films are, indeed, in the public domain further exacerbates the consumer's confusion. "Why can I (legally) download certain books and music tracks free of charge - but not others?" - wonders the baffled surfer, who is rarely versed in the intricacies of copyright laws.

Q. Do you think this leads to a feeling of disrespect toward the various pieces of media by the person that steals it so frequently? (If I download music all the time, will I lose interest in it?)

A. I am not sure that the word "respect" is relevant here. People don't respect or disrespect music - they enjoy it, like it, or dislike it. But frequent illegal downloading of media products is, probably, the outcome of disrespect towards content intermediaries such as publishers, producers, and retail outlets. I don't know for sure because there is no research to guide us in this matter, but I would imagine that these people (wrongly) perceive content intermediaries as parasitic and avaricious.

Q. Downloading is still a widespread act today. The threats of lawsuits and legal action against downloaders hasn't stopped the problem. What, in your opinion, needs to be done to stop this behavior?

A. Law enforcement activities and lawsuits are already having an effect. But you cannot prosecute thousands of people on a regular basis without suffering a commensurate drop in popularity and a tarnished image. People do not perceive these acts as self-defense but as David vs. Goliath bullying. Sooner or later, the efficacy of such measures is bound to decline.

Media companies would do better to adopt new technologies rather than fight them. They must come forth with new business models and new venues of dissemination of content. They have to show more generosity in the management of digital rights. They have to adopt [differential pricing](#) of their products across the board, to reflect disparities in earnings and purchasing power in the global marketplace. They have to transform themselves rather than try to coerce the world into their antiquated and Procrustean ways of doing things.

Q. Psychologically speaking, is there a certain kind of person who is more likely to take part in this behavior? Do you feel that this is a generational issue?

A. I cannot but speculate. There is a dearth of data at this early stage. I would imagine that illegal downloaders are hoarders. They are into owning things rather than into using or consuming them. They are into building libraries and collections. They are young and intelligent, but not affluent. They are irreverent, rebellious, and non-conformist. They may be loners who network socially only online. Some of them love culture and its artifacts but they need not be particularly computer-savvy.

The Economics of Conspiracy Theories

Also published by United Press International (UPI)

Barry Chamish is convinced that Shimon Peres, Israel's wily old statesman, ordered the assassination of Yitzhak Rabin, back in 1995, in collaboration with the French. He points to apparent tampering with evidence. The blood-stained song sheet in Mr. Rabin's pocket lost its bullet hole between the night of the murder and the present.

The murderer, Yigal Amir, should have been immediately recognized by Rabin's bodyguards. He has publicly attacked his query before. Israel's fierce and fearsome internal security service, the Shabak, had moles and agents provocateurs among the plotters. Chamish published a book about the affair. He travels and lectures widely, presumably for a fee.

Chamish's paranoia-larded prose is not unique. The transcripts of Senator Joseph McCarthy's inquisitions are no less outlandish. But it was the murder of John F. Kennedy, America's youthful president, that ushered in a golden age of conspiracy theories.

The distrust of appearances and official versions was further enhanced by the Watergate scandal in 1973-4. Conspiracies and urban legends offer meaning and purposefulness in a capricious, kaleidoscopic, maddeningly ambiguous, and cruel world. They empower their otherwise helpless and terrified believers.

New Order one world government, Zionist and Jewish cabals, Catholic, black, yellow, or red subversion, the machinations attributed to the freemasons and the illuminati - all flourished yet again from the 1970's onwards. Paranoid speculations reached frenzied nadirs following the deaths of celebrities, such as "Princess Di". Books like "The Da Vinci Code" (which deals with an improbable Catholic conspiracy to erase from history the true facts about the fate of Jesus) sell millions of copies worldwide.

Tony Blair, Britain's ever righteous prime minister denounced the "Diana Death Industry". He was referring to the tomes and films which exploited the wild rumors surrounding the fatal car crash in Paris in 1997. The Princess, her boyfriend Dodi al-Fayed, heir to a fortune, as well as their allegedly inebriated driver were killed in the accident.

Among the exploiters were "The Times" of London which promptly published a serialized book by Time magazine reports. Britain's TV networks, led by Live TV, capitalized on comments made by al-Fayed's father to the "Mirror" alleging foul play.

But there is more to conspiracy theories than mass psychology. It is also big business. Voluntary associations such as the Ku Klux Klan and the John Birch Society are past their heyday. But they still gross many millions of dollars a year.

The monthly "Fortean Times" is the leading brand in "strange phenomena and experiences, curiosities, prodigies and portents". It is widely available on both sides of the Atlantic. In its 29 years of existence it has covered the bizarre, the macabre, and the ominous with panache and open-mindedness.

It is named after Charles Fort who compiled unexplained mysteries from the scientific literature of his age (he died in 1932). He published four bestsellers in his lifetime and lived to see "Fortean societies" established in many countries.

A 12 months subscription to "Fortean Times" costs c. \$45. With a circulation of 60,000, the magazine was able to spin off "Fortean Television" - a TV show on Britain's Channel Four. Its reputation was further enhanced when it was credited with inspiring the TV hit series X-Files and The Sixth Sense.

"Lobster Magazine" - a bi-annual publication - is more modest at \$15 a year. It is far more "academic" looking and it sells CD ROM compilations of its articles at between \$80 (for individuals) and \$160 (for institutions and organizations) a piece. It also makes back copies of its issues available.

Its editor, Robin Ramsay, said in a lecture delivered to the "Unconvention 96", organized by the "Fortean Times":

"Conspiracy theories certainly are sexy at the moment ... I've been contacted by five or six TV companies in the past six months - two last week - all interested in making programmes about conspiracy theories. I even got a call from the Big Breakfast Show, from a researcher who had no idea who I was, asking me if I'd like to appear on it ... These days we've got conspiracy theories everywhere; and about almost everything."

But these two publications are the tip of a gigantic and ever-growing iceberg. "Fortean Times" reviews, month in and month out, books, PC games, movies, and software concerned with its subject matter. There is an average of 8 items per issue with a median price of \$20 per item.

There are more than 186,600 Web sites dedicated to conspiracy theories in Google's database of 3 billion pages. The "conspiracy theories" category in the Open Directory Project, a Web directory edited by volunteers, contains hundreds of entries.

There are 1077 titles about conspiracies listed in Amazon and another 12078 in its individually-operated ZShops. A new (1996) edition of the century-old anti-Semitic propaganda pamphlet faked by the Czarist secret service, "Protocols of the Learned Elders of Zion", is available through Amazon. Its sales rank is a respectable 64,000 - out of more than 2 million titles stocked by the online bookseller.

In a disclaimer, Amazon states:

"The Protocols of the Learned Elders of Zion is classified under "controversial knowledge" in our store, along with books about UFOs, demonic possession, and all manner of conspiracy theories."

Yet, cinema and TV did more to propagate modern nightmares than all the books combined. The Internet is starting to have a similar impact compounded by its networking capabilities and by its environment of simulated reality - "cyberspace". In his tome, "Enemies Within: The Culture of Conspiracy in Modern America", Robert Alan Goldberg comes close to regarding the paranoid mode of thinking as a manifestation of mainstream American culture.

According to the Internet Movie Database, the first 50 all time hits include at least one "straight" conspiracy theory movie (in the 13th place) - "Men in Black" with \$587 million in box office receipts. JFK (in the 193rd place) grossed another \$205 million. At least ten other films among the first 50 revolve around a conspiracy theory disguised as science fiction or fantasy. "The Matrix" - in the 28th place - took in \$456 million. "The Fugitive" closes the list with \$357 million. This is not counting "serial" movies such as James Bond, the reification of paranoia shaken and stirred.

X-files is to television what "Men in Black" is to cinema. According to "Advertising Age", at its peak, in 1998, a 30 seconds spot on the show cost \$330,000 and each chapter raked in \$5 million in ad revenues. Ad prices declined to \$225,000 per spot two years later, according to CMR Business to Business.

Still, in its January 1998 issue, "Fortune" claimed that "X-Files" (by then a five year old phenomenon) garnered Fox TV well over half a billion dollars in revenues. This was before the eponymous feature film was released. Even at the end of 2000, the show was regularly being watched by 12.4 million households - compared to 22.7 million viewers in 1998. But X-files was only the latest, and the most successful, of a line of similar TV shows, notably "The Prisoner" in the 1960's.

It is impossible to tell how many people feed off the paranoid frenzy of the lunatic fringe. I found more than 3000 lecturers on these subjects listed by the Google search engine alone. Even assuming a conservative schedule of one lecture a month with a modest fee of \$250 per appearance - we are talking about an industry of c. \$10 million.

Collective paranoia has been boosted by the Internet. Consider the computer game "Majestic" by Electronic Arts. It is an interactive and immersive game, suffused with the penumbral and the surreal. It is a Web reincarnation of the borderlands and the twilight zone - centered around a nefarious and lethal government conspiracy. It invades the players' reality - the game leaves them mysterious messages and "tips" by phone, fax, instant messaging, and e-mail. A typical round lasts 6 months and costs \$10 a month.

Neil Young, the game's 31-years old, British-born, producer told Salon.com recently:

"... The concept of blurring the lines between fact and fiction, specifically around conspiracies. I found myself on a Web site for the conspiracy theory radio show by Art Bell ... the Internet is such a fabulous medium to blur those lines between fact and fiction and conspiracy, because you begin to make connections between things. It's a natural human reaction - we connect these dots around our fears. Especially on the Internet, which is so conspiracy-friendly. That was what was so interesting about the game; you couldn't tell whether the sites you were visiting were Majestic-created or normal Web sites..."

Majestic creates almost 30 primary Web sites per episode. It has dozens of "bio" sites and hundreds of Web sites created by fans and linked to the main conspiracy threads. The imaginary gaming firm at the core of its plots, "Amin-X", has often been confused with the real thing. It even won the E3 Critics Award for best original product...

Conspiracy theories have pervaded every facet of our modern life. A.H. Barbee describes in "Making Money the Telefunding Way" (published on the Web site of the Institute for First Amendment Studies) how conspiracy theorists make use of non-profit "para-churches".

They deploy television, radio, and direct mail to raise billions of dollars from their followers through "telefunding". Under section 170 of the IRS code, they are tax-exempt and not obliged even to report their income. The Federal Trade commission estimates that 10% of the \$143 billion donated to charity each year may be solicited fraudulently.

Lawyers represent victims of the Gulf Syndrome for hefty sums. Agencies in the USA debug bodies - they "remove" brain "implants" clandestinely placed by the CIA during the Cold War. They charge thousands of dollars a pop. Cranks and whackos - many of them religious fundamentalists - use inexpensive desktop publishing technology to issue scaremongering newsletters (remember Mel Gibson in the movie "Conspiracy Theory"?).

Tabloids and talk shows - the only source of information for nine tenths of the American population - propagate these "news". Museums - the UFO museum in New Mexico or the Kennedy Assassination museum in Dallas, for instance - immortalize them. Memorabilia are sold through auction sites and auction houses for thousands of dollars an item.

Numerous products were adversely affected by conspiratorial smear campaigns. In his book "How the Paranoid Style Flourishes and Where it Comes From", Daniel Pipes describes how the sales of Tropical Fantasy plummeted by 70% following widely circulated rumors about the sterilizing substances it allegedly contained - put there by the KKK. Other brands suffered a similar fate: Kool and Uptown cigarettes, Troop Sport clothing, Church's Fried Chicken, and Snapple soft drinks.

It all looks like one giant conspiracy to me. Now, here's one theory worth pondering...

Swine Flu as a Conspiracy

The Internet has rendered global gossip that in previous epochs would have remained local. It also allowed rumour-mongers to leverage traditional and trusted means of communication – texts and images – to lend credence to the most outlandish claims. Some bloggers and posters have not flinched from doctoring photos and video clips. Still, the most efficient method of disseminating disinformation and tall tales in the wild is via text.

In May 2009, as swine flu was surging through the dilapidated shanties of Mexico, I received a mass-distribution letter from someone claiming to have worked at the National Institutes of Health in Virology: "I worked in the Laboratory of Structural Biology Research under the NIAMS division of NIH from 2002 - 2004." Atypically, the source provided a name, an e-mail address, and a phone number. He stated that the newly-minted pandemic was the outcome of a "recombinant virus has been unleashed upon mankind" by a surrealistic coalition: "the Executive Branch of our (USA) government, the World Health Organization (WHO), as well as Baxter Pharmaceutical", the latter being "involved in international biological weapons programs." The media was lying blatantly about the number of casualties.

The e-mail letter cautioned against "a martial law type scenario" in which the government will "ban public gatherings, enforce travel restrictions ... forced vaccination or forced

quarantine.” He advised people to hoard food, obtain N95 or P100 masks, and “Have a means of self-defence”. Tamiflu and, more generally, neuraminidase inhibitors are not effective, he warned. Instead, he recommended organic food (including garlic), drops of Colloidal Silver Hydrosol, Atomic (nascent) iodine, Allicin, Medical Grade, and NAC (N-acetyl-cysteine).

Blaming government and the pharmaceutical industry for instigating the very diseases they are trying to contain and counter is old hat. It is founded on the dubious assertion of *cui bono*: pandemics are worth anywhere from 8 to 18 billion USD in extra annual income from the enhanced sales of vaccines, anti-virals, antibiotics, wipes, masks, sanitizers, and the like. That’s a drop in the industry’s bucket (close to 1 trillion USD in sales last year), yet it comes handy in times of economic slowdown. Luckily for the drug-makers, most major epidemics and pandemics have occurred during recessions, perfectly timed to shore their balance sheets.

The sales or profits of drug-makers not involved in the swine flu panic (such as Pfizer) actually went down in the third quarter of 2009 as opposed to the revenues and net income of those who were. Novartis expects to make an extra 400-700 million USD in the last quarter of 2009 and first quarter of 2010. Sanofi-Aventis has sold a mere 120 million worth of swine flu related goods, but this will shoot up to 1 billion in the six months to March 2010. Similarly, While Astra-Zeneca’s tally is a meagre 152 million USD, yet it constitutes 2% of its growth and one third of its sales in the USA. It foresees another 300 million USD in revenues. Finally, GlaxoSmithKline has pushed whopping 1.6 billion USD worth of swine flu vaccine out the door plus an extra 250 million USD in related products till end-September 2009. Pandemics are good for business, no two ways about it.

The aura of the pharmaceutical industry is such that people seamlessly lump it together with weapons manufacturers, the CIA, Big Tobacco, and other usual culprits and suspects. Drug manufacturers’ advertising budgets are huge and may exert disproportionate influence on editorial decisions in the print media. Pharma companies are big contributors to campaign coffers and can and do bend politicians’ ears in times of need. There is a thinly-veiled revolving door between underpaid and over-worked bureaucrats in regulatory agencies and the plush offices of the ostensibly regulated. Academic studies are often funded by the industry. People naturally are suspicious and apprehensive of this confluence of power, money, and access. Recent scandals at the FDA (America’s much-vaunted and hitherto-venerated Food and Drug Administration) did not help matters.

The truth is that pharmaceutical companies are very reluctant to develop vaccines, or to cope with pandemics, whose sufferers are often the indigent inhabitants of developing and poor countries. To amortize their huge sunk costs (mainly in research and development) they resort to supply-side and demand-side measures.

On the demand side, they often insist on advance market commitments: guaranteed purchases by governments, universities, and [NGOs](#). They also enjoy tax credits and breaks, grants, and awards. [Differential pricing](#) is used to skew decision-making and re-allocate the economic resources of the governments of impoverished countries in favour of purchasing larger quantities of products such as vaccines. On the supply side, they create artificial scarcity by patenting the processes that are involved in the production of vaccines and drugs; by licensing technologies only to a handful of carefully-placed factories; and by producing under the maximum capacity so as to induce rationing within tight release and delivery schedules (which, in itself, induces panic).

Still, collude as they may in profiteering, governments and the pharma industry do not create new diseases, spread them, or sustain them. This job is best left to the poor and the ignorant whose living conditions encourage cross-species infections and whose superstitions foment hysteria every time a new strain of virus is discovered. You can count on them to render the rich drug-manufacturer even richer every single time.

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Games People Play

Massively Multiplayer Online Role Playing Games (MMORPG)

Also published by United Press International (UPI)

Games and role-playing are as ancient as Mankind. Rome's state-sponsored lethal public games may have accounted for up to one fifth of its GDP. They often lasted for months. Historical re-enactments, sports events, chess tournaments, are all manifestations of Man's insatiable desire to be someone else, somewhere else - and to learn from the experience.

In June 2002, Jeff Harrow, in his influential and eponymous "Harrow Technology Report", analyzed the economics of Massively Multiplayer Online Role Playing Games (MMORPG). These are 3-D games which take place in comprehensively and minutely constructed environments - a medieval kingdom being the favorite. "Gamers" use action figures known as avatars to represent themselves. These animated figurines walk, talk, emote, and are surprisingly versatile.

Harrow quoted this passage from Internetnews.com regarding Sony's (actually, Verant's) "EverQuest". It is a massive MMORPG (now with a sequel) with almost half a million users - each paying c. \$13 a month:

"(Norrath, EverQuest's ersatz world is) ... the 77th largest economy in the [real] world! [It] has a gross national product per capita of \$2,266, making its economy larger than either the Chinese or Indian economy and roughly comparable to Russia's economy."

In his above quoted paper, "Virtual Worlds: A First-Hand Account of Market and Society on the Cyberian Frontier", Professor Edward Castronova, from California State University at Fullerton, notes that:

"The nominal hourly wage (in Norrath) is about USD 3.42 per hour, and the labors of the people produce a GNP per capita somewhere between that of Russia and Bulgaria. A unit of Norrath's currency is traded on exchange markets at USD 0.0107, higher than the Yen and the Lira. The economy is characterized by extreme inequality, yet life there is quite attractive to many."

Players - in contravention of the game's rules until recently - also trade in EverQuest paraphernalia and characters offline. The online auction Web site, eBay, is flooded with them and people pay real money - sometimes up to a thousand dollars - for avatars and their possessions. Auxiliary and surrogate industries sprang around EverQuest and its ilk. There are, for instance, "macroing" programs that emulate the actions of a real-life player - a no-no.

Nor is EverQuest the largest. World of Warcraft from Blizzard Entertainment has 1.5 million subscribers. The Korean MMORPG "Lineage" boasts a staggering 2.5 million subscribers. "The Matrix Online", released by Warner Brothers Interactive Entertainment and Sega

Corporation in 2004-5, may surpass these figures due to its association with the film franchise - though Star War Galaxies, for instance, failed to leverage its cinematic brand.

The economies of these immersive faux realms suffer from very real woes, though. In its May 28, 2002 issue, "The New Yorker" recounted the story of Britannia, one of the nether kingdoms of the Internet:

"The kingdom, which is stuck somewhere between the sixth and the twelfth centuries, has a single unit of currency, a gold piece that looks a little like a biscuit. A network of servers is supposed to keep track of all the gold, just as it keeps track of everything else on the island, but in late 1997 bands of counterfeiters found a bug that allowed them to reproduce gold pieces more or less at will.

The fantastic wealth they produced for themselves was, of course, entirely imaginary, and yet it led, in textbook fashion, to hyperinflation. At the worst point in the crisis, Britannia's monetary system virtually collapsed, and players all over the kingdom were reduced to bartering."

Britannia - run by Ultima Online - has 250,000 "denizens", each charged c. \$10 a month. An average Britannian spends 13 hours a week in the simulated demesne. For many, this constitutes their main social interaction. Psychologists warn against the addictive qualities of this recreation.

Others regard these diversions as colossal - though inadvertent - social experiments. If so, they bode ill - they are all infested with virtual crime, counterfeiting, hoarding, xenophobia, racism, and all manner of perversions.

Subscriptions are not the only mode of payment. Early multi-user dungeons (MUD) - another type of MMORPG - used to charge by the hour. Some users were said to run bills of hundreds of dollars a month.

MMORPG's require massive upfront investments. It costs c. \$20 million to develop a game, not including later content development and technical support. Consequently, hitherto, such games constitute a tiny fraction of the booming video and PC gaming businesses. With combined annual revenues of c. \$9 billion in 2001, these trades are 10 percent bigger than the film industry - and half as lucrative as the home video market. They are fast closing on music retail sales.

As games become graphically-lavish and more interactive, their popularity will increase. Offline and online single-player and multi-player video gaming may be converging. Both Sony and Microsoft Internet-enable their game consoles. The currently clandestine universe of geeks and eccentrics - online, multi-player, games - may yet become a mass phenomena.

Moreover, MMORPG can be greatly enhanced - and expensive downtime greatly reduced - with distributed computing - the sharing of idle resources worldwide to perform calculations within ad hoc self-assembling computer networks. Such collaboration forms the core of, arguably, the new architecture of the Internet known as "The Grid". Companies such as IBM and Butterfly are already developing the requisite technologies.

According to an IBM-Butterfly press release:

"The Butterfly Grid T could enable online video game providers to support a massive number of players (a few millions) (simultaneously) within the same game by allocating computing resources to the most populated areas and most popular games."

The differences between video games and other forms of entertainment may be eroding. Hollywood films are actually a form of MMORPG's - simultaneously watched by thousands worldwide. Video games are interactive - while movies are passive but even this distinction may fall prey to Web films and interactive TV.

As real-life actors and pop idols are - ever so gradually - replaced by electronic avatars, video games will come to occupy the driver seat in a host of hitherto disparate industries. Movies may first be released as video games - rather than conversely. Original music written for the games will be published as "sound tracks".

Gamers will move seamlessly from their PDA to their PC, to their home cinema system, and back to their Interactive TV. Game consoles - already computational marvels - may finally succeed where PC's failed: to transform the face of entertainment.

Jeff Harrow aptly concludes:

" ... History teaches me that games tend to drive the mass adoption of technologies that then become commonplace and find their way into 'business'. Examples include color monitors, higher-resolution and hardware-accelerated graphics, sound cards, and more. And in the case of these MMORPG games, I believe that they will eventually morph into effective virtual business venues for meetings, trade shows, and more. Don't ignore what's behind (and ahead for) these 'games', just because they're games..."

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WEB TECHNOLOGIES AND TRENDS

How to Surf the Internet Safely

1. NEVER click on a link that is contained in an e-mail, instant message, or post to a Usenet or other group.
2. NEVER open or install a program directly from the Internet. First, download it to your hard disk, scan it with your anti-virus software, and only then, if it is clean, install it.
3. NEVER open or install a program directly from a CD-ROM or DVD. First, scan it with your anti-virus software, and only then, if it is clean, install it.
4. NEVER enter any personal details in forms on unknown sites.
5. NEVER type your User ID or password unless you see the LOCK icon at the bottom of the screen and the Web address starts with https://
6. NEVER click on a pop-up, no matter what it says! Don't click on it even if you want to close it.
7. NEVER open attachments that you receive by e-mail. If in doubt, save the attachment to the hard disk, scan it with your anti-virus software, and only then, if it is clean, open it. Try to read all your e-mail messages in text format, rather than HTML.
8. NEVER visit unfamiliar Websites. First, go to Google (www.google.com) and check whether the site is legitimate and does not carry malware. Only if it is clean, visit it for the first time using the Opera browser.
9. CHANGE your passwords frequently; use complex passwords (example: 7Yby89IfD); never give your passwords to anyone.
10. UPDATE your Operating System, Antivirus, Firewall, Antispyware, and computer manufacturer's utilities DAILY.
11. SCAN your computer for malware every time you use the computer, after you have used it.
12. ANYTHING SUSPICIOUS? Stop everything you are doing, disconnect from the Internet, and scan the computer for malware. Examples of suspicious behavior: persistent pop-ups; the computer or connection slow down considerably; repeated re-boots; mouse or keyboard freeze; strange messages and alerts.

European Banks Threatened by Identity Theft

European banks, from Sweden to Austria, are likely to face, in the near future, an unprecedented wave of attempts at identity theft. Hackers from Latvia to Ukraine and from Serbia to Bulgaria are now targeting financial institutions. The global crisis has added to the rows of unemployed former spies, laid-off bankers, and computer programmers. Networks of secret agents, knowledgeable financiers, and computer-savvy criminals have sprung all over Eastern and Central Europe and the Balkans.

How can Europe's banks defend themselves?

1. By assigning account or relationship managers to all business accounts and individual accounts above a certain size. This is the practice in private banking and investment banking, but it has yet to spread to retail. A one-on-one line of communication between client and specific bank officer places an insurmountable obstacle in front of hackers and criminals.
2. Banks should allow their clients to "block" their accounts at no charge to the client. Account blockage means that all transfers from the account require the confirmation and approval of one or two specific bank officers who know the client personally. Thus, even if a hacker or a criminal were to succeed to effect a transfer of funds, such illicit and damaging activity could be blocked by the bank.
3. Banks should ignore and disallow instructions in the account received by e-mail. E-mail communication is amenable to spoofing, hijacking, hacking, and other forms of impersonation. Even Web-based e-mail services such as Gmail are highly insecure, especially over wireless networks.
4. Instructions by fax should be accepted only after the client provided, verbally, a one time code (see below).
5. Verbal communication should be conducted via mobile phones, not fixed or land lines. The mobile phone's SIM card guarantees the identity of the specific device used and allows for tracing in case a crime has been committed. On many networks the communication flow is encrypted. Man-in-the-middle attacks and interception are more difficult with cell phones.

Online Banking Safeguards

All of Europe's major banks offer to their customers financial services and products through the Internet. But there's a problem: computer security. To withstand the coordinated onslaught of hackers and cyber-criminals, who are constantly trying to empty the bank accounts of their victims, online banking Websites must incorporate many defensive safety features. These render the entire experience cumbersome and complicated and deter the vast majority of clients.

Generally speaking, European banks are far safer than American ones as far as online banking and their online presence go. The list below is short and by no means exhaustive and is based on a study conducted at the University of Michigan by Atul Prakash, a professor in the department of electrical engineering and computer science, and two doctoral students, Laura Falk and Kevin Borders:

1. All the pages of the bank's Website must use SSL (Secure Sockets Layer) and TLS encryption technologies. In the Internet Explorer Web browser, a small, yellow padlock icon appears at the bottom or the top of the page when such encryption is available. It prevents hackers from tapping into the exchange of information between the user's computer and the bank's servers and routers. Most browsers now offer also a wide variety of anti-phishing protections.

2. Users should not use their computer keyboard to type in passwords. Many computers are infected with keyloggers: small software applications that monitor the user's typing and pass on the information to networks of criminals. Instead, the bank should provide a "virtual keyboard" (a tiny on-screen graphic that looks like a keyboard). Users can then click their mouse and press the various "keys" of the virtual keyboard to form the password. Some banks use Java "sandboxing" and virtualization technologies in order to isolate the online banking session from the user's potentially-infected browser or computer.

3. The banking Website should not re-direct the user to other domains or sites (which potentially are not as secure).

4. The bank should insist on strong passwords: minimum five characters, allowing combinations of numerals and letters, including capitalized ones. Few banks adhere to this rule, though. Many of them allow passwords with only 4-5 numerals.

5. The bank should never send any information pertaining to the account - especially not passwords - via e-mail. Many European banks violate this cardinal rule by sending a staggering amount of information about the account via email, including account numbers, balances, movements, and ownership.

6. The bank should insist on "two-factor authentication". The user would need a username and password to access the Website. But, to transact in the account, he would make use of one time "tokens" (codes). Each user should be equipped with printed lists of such codes or with a special device that generates them. They can also receive the codes via SMS. The codes are used to transfer money, change the password, change the limit of withdrawal, give instructions regarding securities and deposits, etc.

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Cyber (Internet) Narcissists and Psychopaths

To the narcissist, the Internet is an alluring and irresistible combination of playground and hunting grounds, the gathering place of numerous potential Sources of Narcissistic Supply, a world where false identities are the norm and mind games the bon ton. And it is beyond the reach of the law, the pale of social norms, the strictures of civilized conduct.

The somatic finds cyber-sex and cyber-relationships aplenty. The cerebral claims false accomplishments, fake skills, erudition and talents. Both, if minimally communicative, end up at the instantly gratifying epicenter of a cult of fans, followers, stalkers, erotomaniacs, denigrators, and plain nuts. The constant attention and attendant quasi-celebrity feed and sustain their grandiose fantasies and inflated self-image.

The Internet is an extension of the real-life Narcissistic Pathological Space but without its risks, injuries, and disappointments. In the virtual universe of the Web, the narcissist vanishes and reappears with ease, often adopting a myriad aliases and nicknames. He (or she) can thus fend off criticism, abuse, disagreement, and disapproval effectively and in real time – and, simultaneously, preserve the precarious balance of his infantile personality. Narcissists are, therefore, prone to Internet addiction.

The positive characteristics of the Net are largely lost on the narcissist. He is not keen on expanding his horizons, fostering true relationships, or getting in real contact with other people. The narcissist is forever the provincial because he filters everything through the narrow lens of his addiction. He measures others – and idealizes or devalues them – according to one criterion only: how useful they might be as Sources of Narcissistic Supply.

The Internet is an egalitarian medium where people are judged by the consistency and quality of their contributions rather than by the content or bombast of their claims. But the narcissist is driven to distracting discomfiture by a lack of clear and commonly accepted hierarchy (with himself at the pinnacle). He fervently and aggressively tries to impose the "natural order" – either by monopolizing the interaction or, if that fails, by becoming a major disruptive influence.

But the Internet may also be the closest many narcissists get to psychodynamic therapy. Because it is still largely text-based, the Web is populated by disembodied entities. By interacting with these intermittent, unpredictable, ultimately unknowable, ephemeral, and ethereal voices – the narcissist is compelled to project unto them his own experiences, fears, hopes, and prejudices.

Transference (and counter-transference) are quite common on the Net and the narcissist's defence mechanisms – notably projection and Projective Identification – are frequently aroused. The therapeutic process is set in motion by the – unbridled, uncensored, and brutally honest - reactions to the narcissist's repertory of antics, pretensions, delusions, and fantasies.

The narcissist – ever the intimidating bully – is not accustomed to such resistance. Initially, it may heighten and sharpen his paranoia and lead him to compensate by extending and deepening his grandiosity. Some narcissists withdraw altogether, reverting to the schizoid posture. Others become openly antisocial and seek to subvert, sabotage, and destroy the online sources of their frustration. A few retreat and confine themselves to the company of adoring sycophants and unquestioning groupies.

(continued below)

This article appears in my book, "Malignant Self Love - Narcissism Revisited"

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But a long exposure to the culture of the Net – irreverent, skeptical, and populist – usually exerts a beneficial effect even on the staunchest and most rigid narcissist. Far less convinced of his own superiority and infallibility, the online narcissist mellows and begins – hesitantly – to listen to others and to collaborate with them.

Ultimately, most narcissists - those who are not [schizoid](#) and shun social contact - tire of the virtual reality that is cyberspace. The typical narcissist needs "tangible" narcissistic supply. He craves attention from real, live, people, flesh and blood. He strives to see in their eyes their admiration and adulation, the awe and fear that he inspires, the approval and affirmation that he elicits.

There is no substitute to human contact, even for the narcissist. Many narcissists try to carry online relationships they nurtured into their logical extension and conclusion offline. Other burst upon the cyber scene intermittently, vanishing for long months, only to dive back in and reappear, reinvigorated. Reality beckons and few narcissists resist its siren call.

Interview granted to Misty Harris of CanWest on February 23, 2005

Q. How might technology be enabling narcissism, particularly for the Internet generation?

A. To believe that the Internet is an unprecedented phenomenon with unique social implications is, in itself, narcissistic. The Internet is only the latest in a long series of

networking-related technological developments. By definition, technology is narcissistic. It seeks to render us omnipotent, omniscient, and omnipresent - in other words, Godlike.

The Internet allows us to replicate ourselves and our words (through vanity desktop publishing, blogs, and posting online content on Web sites), to playact our favorite roles, to communicate instantly with thousands (narrowcasting), to influence others, and, in general, to realize some of our narcissistic dreams and tendencies.

Q. Why is it a bad thing to have a high opinion of yourself?

A. It is not a bad thing if it is supported by commensurate achievements. If the [gap between fantasy and reality](#) is too big, a dysfunction that we call "pathological narcissism" sets in.

Q. What does it say about our culture that we encourage narcissistic characteristics in people? (example: Paris Hilton - we made her a star for loving herself)

A. [Celebrity culture](#) is not a new thing. It is not a culture-dependent phenomenon. Celebrities fulfil two emotional functions for their fans: they provide a mythical narrative (a story that the fan can follow and identify with) and they function as blank screens onto which the fans project their dreams, hopes, fears, plans, values, and desires (wish fulfilment).

[Western culture](#) emphasizes ambition, competitiveness, materialism, and individualism. These admittedly are narcissistic traits and give the narcissist in our society an opening advantage.

But narcissism exists in a different form in collectivist societies as well. As Theodore Millon and Roger Davis state in their seminal tome, "*Personality Disorders in Modern Life*":

"In an individualistic culture, the narcissist is 'God's gift to the world'. In a collectivist society, the narcissist is 'God's gift to the collective'".

More here - [It's all about me - narcissism in a high-tech era](#)

Read about the [Wikipedia as a case of online pathological narcissism](#)

Twitter: [Narcissism](#) or Age-old Communication?

It has become fashionable to castigate Twitter - the microblogging service - as an expression of rampant narcissism. Yet, narcissists are verbose and they do not take kindly to limitations imposed on them by third parties. They feel entitled to special treatment and are rebellious. They are enamored with their own voice. Thus, rather than gratify the average narcissist and provide him or her with [narcissistic supply](#) (attention, adulation, affirmation), Twitter is actually liable to cause [narcissistic injury](#).

From the dawn of civilization, when writing was the province of the few and esoteric, people have been memorizing information and communicating it using truncated, mnemonic bursts. Sizable swathes of the Bible resemble Twitter-like prose. Poetry, especially blank verse one, is Twitterish. To this very day, newspaper headlines seek to convey information in digestible, resounding bits and bites. By comparison, the novel - an avalanche of text - is a newfangled phenomenon.

Twitter is telegraphic, but this need not impinge on the language skills of its users. On the contrary, coerced into its Procrustean dialog box, many interlocutors become inventive and creativity reigns as bloggers go atwitter.

Indeed, Twitter is the digital reincarnation of the telegraph, the telegram, the telex, the text message (SMS, as we Europeans call it), and other forms of business-like, data-rich, direct communication. Like them, it forces its recipients to use their own imagination and creativity to decipher the code and flesh it out with rich and vivid details. It is unlikely to vanish, though it may well be supplanted by even more pecuniary modes of online discourse.

Interview granted to Agencia Efe, Spain, April 2008

1. Does the Internet make a special amplification of narcissism or is just the reflection of reality? How, despite of the fact that many people is disturbed by the anonymous characters that you can adopt in the Internet, the exhibitionism is, maybe, more usual. I mean, in terms of narcissism? Can a person be addicted to the web because is own narcissism?

A. The narcissist likes to appear to be mysterious. It enhances his self-perceived sense of omnipotence, it renders him "unique" and "interesting". The right moniker (Internet alias or handle) imbues the narcissist with a sense of [immunity](#) and superiority and permits him to commit the most daring or [heinous acts](#).

2. What kind of lacks or necessities there are behind this behaviour? What are we expecting when we search our name on Google? Can we construct our image with the pieces of us in the internet?

A. The Internet is the hi-tech equivalent of a giant mirror. Like the mythical Narcissus, it allows us to fall in love with our reflection every day anew. We gaze into the depths of the Internet to reassure ourselves of our continuity and very existence. It is our modern photo album; a repository of snippets of our lives; and our external memory.

In psychoanalytic terms, the Internet replaces some of our ego functions: it regulates our sense of self-worth; puts us in touch with reality and with others; and structures our interactions (via its much vaunted peer-pressure of the Netiquette and the existence of editors and moderators).

We crave attention and feedback: proof positive that we matter, that someone cares about us, that we are not mere atoms in a disjointed and anomic Universe. In this sense, the Internet substitutes for God and many social functions by reassuring us that we fit into a World that, though amorphous and protean, is sustaining, predictable, constant, and nurturing. The Internet replaces our parents as a source of nourishment, support, caring, discipline, and omniscience.

3. In the case of the blogs, what's the point in common in the idea of doing a private diary and be available for everybody?

A. I am not sure what you mean. Blogs are anything but private. They are explicitly meant for public consumption, thrive on public attention, and encourage interaction with the public

(through the comments area). One can set one's blog or online journal to "private", though, as the hi-tech equivalent of a personal diary.

4. Internet, with their blogs, Facebook, Myspace or YouTube, has create the possibility of make yourself famous without promotion, just with the progressive diffusion of your material. Examples like the singers Mika and Lilly Allen or many bloggers, can it make a new way of realizing the "American dream" for the users of the Internet?

A. Being famous encompasses a few important functions: it endows us with power, provides us with a constant Source of Narcissistic Supply (admiration, adoration, approval, awe), and fulfils important Ego functions.

The Internet caters to our narcissistic traits and propensities and allows us to become "celebrities-by-replication". The image that the blogger or artist projects is hurled back at him, reflected by those exposed to his instant celebrity or fame. By generating multiple copies of himself and his work, he feels alive, his very existence is affirmed and he acquires a sensation of clear boundaries (where he ends and the world begins).

There is a set of narcissistic behaviours typical to the pursuit of celebrity. There is almost nothing that the Net celebrity refrains from doing, almost no borders that he hesitates to cross to achieve renown. To him (or, increasingly, her), there is no such thing as "bad publicity": what matters is to be in the public eye at any price.

Because narcissistic individuals equally enjoy all types of attention and like as much to be feared as to be loved, for instance – they don't mind if what is published about them is wrong ("as long as they spell my name correctly"). The celebrity blogger or artist experiences bad emotional stretches only when he lacks attention, or publicity.

It is then that some bloggers, artists, and Webmasters plot, contrive, plan, conspire, think, analyse, synthesise and do whatever it takes to regain the lost exposure in the public eye. The more they fail to secure the attention of the target group (preferably, the entire Internet community), the more daring, eccentric and outlandish they become. A firm decision to become known is transformed into resolute action and then to a panicky pattern of attention seeking behaviours.

It is important to understand that the blogger/artist/Webmaster are not really interested in publicity *per se*. They appear to be interested in becoming a celebrity, but, in reality, they are concerned with the **REACTIONS** to their newly-acquired fame: people watch them, notice them, talk about them, debate their actions – therefore they exist.

5. There are many new applications to feed human narcissism on the net: Googlefight, Egosurf.org, the blogs themselves... Could be used narcissism as a business?

A. Every good business is founded on the mass psychology of its clientele. In a [narcissistic civilization](#), business is bound to adapt and become increasingly more narcissistic. The Internet started off as an information exchange. The surge of (mainly American) users transformed it in profound ways. User-generated "content" is a thin veneer beneath which lurks the seething and pathological narcissism of the masses. Narcissism is our main business organizing principle outside the Internet as well: cosmetics, fashion, health, publishing, show

business, the media, and the financial industries all rest on firm narcissistic foundations. The [management class](#) itself is highly narcissistic!

6. Can be satisfied the true and pathologic narcissism just with the feed-back on the Internet or it needs, finally, to put in "real" his power of attraction.

A. What's not real about the Internet? This dichotomy between virtual and real is false. The Internet is as real as it gets and, for many of its users, it is the only reality and the only frame of reference. It is "reality" as we used to know it that is gradually vanishing and being replaced by "virtual" substitutes: print media are dying and giving way to blogs and online news aggregators; iTunes and Napster and BitTorrent and eMule are ruining the very physical music CD; there is more published on the Internet than is available in many brick and mortar libraries, and so on.

7. Could presence or non-presence in Internet create a new kind of social class?

A. Like every other social phenomenon, the Internet gave rise to a stratified society with hackers, crackers, nerds, geeks, Wikipedians, bloggers, etc. occupying various niches. Not using the Internet - a kind of Internet Luddism - may yet become a badge of honor. Internet addicts may become either outcasts or the new [elite](#). Who knows? Everything digital is still in its formative years and still in flux.

8. How dangerous is narcissism, inside or outside the web?

A. Very dangerous. Just read the list of diagnostic criteria for the [Narcissistic Personality Disorder](#) (NPD): the narcissist lacks empathy, is arrogant, exploits people, is envious, has a strong and unjustified sense of entitlement, and is obsessive and delusional. Many narcissists are also [psychopaths](#). Pathological narcissism is often diagnosed with other mental health disorders (a phenomenon called "[co-morbidity](#)"). Narcissists are over-represented among criminals, gamblers, and people with [reckless](#) and inconsiderate behaviors.

Interview granted to About.com about Online Dating

1. In your opinion, why does the Internet seem to be an easy forum to fall in love?

A. Frequently, in online dating, the partners are treated as "blank screens" onto which the online dater [projects](#) her dreams, wishes, and unfulfilled needs and yearnings. The Internet allows the two sides to maintain an emotionally riskless intercourse by fully controlling the interaction with their interlocutors or correspondents. While thoroughly gratified, they are less likely to get hurt and feel less vulnerable because they invest - emotionally and otherwise - far less than in a full-fledged, "real" life liaison. Of course, they are usually disappointed when they try to flesh out their online fantasy by moving the relationship offline, "down to earth" and into "brick-and-mortar" venues.

2. *Despite an online relationship being made up of text messages and pictures, why does it seem people more easily get into Internet relationships than they do in real life?*

A. "Internet relationship" is an oxymoron. A relationship entails the existence of a physical dimension, time spent together, friction and conflict, the satisfaction of all the senses, and experiences shared. IM, chat, webcams, and the like can seemingly bring people closer and create the illusion of intimacy, but actually it is a narcissistic sham, an echo chamber, a simulacrum. People "fall in love" with their own reflections and with idealized partners, not with the real items. Their counterparty is merely a peg on which they hang their desire for closeness, a sounding board. It is like watching a film: one can be moved to tears by what is happening on the screen, but very few confuse the flickering lights with reality itself.

3. *What dangers are there in falling in love online?*

A. Online "love" is not love at all and, therefore, it is less prone to heartbreak and disappointment. The parties fully control their side of the interaction and limit it at will. The information exchanged is doctored and there is no way of verifying it (for instance, by paying attention to body language and social cues). Online "love" is more akin to infatuation, comprised of equal measures fantasy and narcissism. The parties fall in love with the idea of falling in love: the actual online partner is rather incidental. The extant technology dictates the solipsistic and self-centered nature of these exchanges.

Online dating is inherently unsafe as it affords no way to ascertain the identity of your interlocutor or correspondent. When you date online, you are missing out on critical information such as your potential partner's body language; the [pattern of his social interactions](#); his behavior in unexpected settings and circumstances; his non-scripted reactions; even his smell and how he truly looks, dresses, and conducts himself in public and in private. The dangers, like in real life, is when one comes across a predator: a psychopath, a stalker, or a bully. Click on this link to learn how to avoid these people: [How to Recognize a Narcissist or Psychopath Before It is Too Late?](#)

4. *What tips can you share with readers who have fallen in love online and have been burnt by the rejection of a breakup online who might do it again?*

A. The Internet is merely a sophisticated, multimedia communication channel, a glorified videophone. "Distance relationships" don't work. Real, lasting, emotionally-rewarding relationships that lead to happiness and personal growth require propinquity, familiarity, intimacy, and sacrifices. Don't make the Internet your exclusive dating venue and don't use it to shield you from life itself. Deploy it merely to find information and reach out and, on the first opportunity, log off and go out there to confront multidimensional reality with all its complexity and ambiguities. Do not use the Internet to fend off potential hurt: there is no growth without pain and no progress without experience.

5. *Despite some problems, do you think the Internet should be sworn off as a means of finding love?*

A. Online dating is a great tool for people who, for various reasons, have limited access to other dating options or venues where you can date "real" people face-to-face, instead of mere avatars. [Return](#)

Thoughts on the Internet's Founding Myths

Whenever I put forth on the Internet's numerous newsgroups, discussion fora and Websites a controversial view, an iconoclastic opinion, or a much-disputed thesis, the winning argument against my propositions starts with "everyone knows that ...". For a self-styled nonconformist medium, the Internet is the reification of herd mentality.

Actually, it is founded on the rather explicit belief in the implicit wisdom of the masses. This particularly pernicious strong version of egalitarianism postulates that veracity, accuracy, and truth are emergent phenomena, the inevitable and, therefore, guaranteed outcome of multiple interactions between users.

But the population of Internet users is not comprised of representative samples of experts in every discipline. Quite the contrary. The barriers to entry are so low that the Internet attracts those less gifted intellectually. It is a filter that lets in the stupid, the mentally ill, the charlatan and scammer, the very young, the bored, and the unqualified. It is far easier to publish a blog, for instance, than to write for the New York Times. Putting up a Website with all manner of spurious claims for knowledge or experience is easy compared to the peer review process that vets and culls scientific papers.

One can ever "contribute" to an online "encyclopedia", the Wikipedia, [without the slightest acquaintance the topic one is "editing"](#). Consequently, the other day, I discovered, to my utter shock, that Eichmann changed his name, posthumously, to Otto. It used to be Karl Adolf, at least until he was executed in 1962.

Granted, there are on the Internet isolated islands of academic merit, intellectually challenging and invigorating discourse, and true erudition or even scholarship. But they are mere islets in the tsunami of falsities, fatuity, and inanities that constitutes the bulk of User Generated Content (UGC).

Which leads me to the second myth: that access is progress.

Oceans of information are today at the fingertips of one and sundry. This is undisputed. The Internet is a vast storehouse of texts, images, audio recordings, and databases. But what matters is whether people make good use of this serendipitous cornucopia. A savage who finds himself amidst the collections of the Library of Congress is unlikely to benefit much.

Alas, most people today are cultural savages, Internet users the more so. They are lost among the dazzling riches that surround them. Rather than admit to their inferiority and accept their need to learn and improve, they claim "equal status". It is a form of rampant [pathological narcissism](#), a defense mechanism that is aimed to fend off the injury of admitting to one's inadequacies and limitations.

Internet users have developed an ethos of anti-elitism. There are no experts, only opinions, there are no hard data, only poll results. Everyone is equally suited to contribute to any subject. Learning and scholarship are frowned on or even actively discouraged. The public's

taste has completely substituted for good taste. Yardsticks, classics, science - have all been discarded.

Study after study have demonstrated clearly the decline of functional literacy (the ability to read and understand labels, simple instructions, and very basic texts) even as literacy (in other words, repeated exposure to the alphabet) has increased dramatically all over the world.

In other words: most people know how to read but precious few understand what they are reading. Yet, even the most illiterate, bolstered by the Internet's mob-rule, insist that their interpretation of the texts they do not comprehend is as potent and valid as anyone else's.

Web 2.0 - Hoarding, Not Erudition

When I was growing up in a slum in Israel, I devoutly believed that knowledge and education will set me free and catapult me from my miserable circumstances into a glamorous world of happy learning. But now, as an adult, I find myself in an alien universe where functional literacy is non-existent even in developed countries, where "culture" means merely sports and music, where science is decried as evil and feared by increasingly hostile and aggressive masses, and where irrationality in all its forms (religiosity, the occult, conspiracy theories) flourishes.

The few real scholars and intellectuals left are on the retreat, back into the ivory towers of a century ago. Increasingly, their place is taken by self-taught "experts", [narcissistic](#) bloggers, wannabe "authors" and "auteurs", and partisan promoters of (often self-beneficial) "causes". The mob thus empowered and complimented feels vindicated and triumphant. But history cautions us that mobs have never produced enlightenment - only concentration camps and bloodied revolutions. the Internet can and will be used against us if we don't regulate it.

Dismal results ensue:

The [Wikipedia "encyclopedia"](#) - a repository of millions of factoids, interspersed with juvenile trivia, plagiarism, bigotry, and malice - is "edited" by anonymous users with unlimited access to its contents and absent or fake credentials.

Hoarding has replaced erudition everywhere. People [hoard e-books](#), mp3 tracks, and photos. They memorize numerous fact and "facts" but can't tell the difference between them or connect the dots. The synoptic view of knowledge, the interconnectivity of data, the emergence of insight from treasure-troves of information are all lost arts.

In an interview in early 2007, the publisher of the New-York Times said that he wouldn't mourn the death of the print edition of the venerable paper and its replacement by a digital one. This nonchalant utterance betrays unfathomable ignorance. Online readers are vastly different to consumers of printed matter: they are younger, their attention span is far shorter, their interests far more restricted and frivolous. The New-York Times online will be forced into becoming a tabloid - or perish altogether.

Fads like [environmentalism](#) and alternative "medicine" spread malignantly and seek to silence dissidents, sometimes by violent means.

The fare served by the electronic media everywhere now consists largely of soap operas, interminable sports events, and reality TV shows. True, niche cable channels cater to the preferences of special audiences. But, as a result of this inauspicious fragmentation, far fewer viewers are exposed to programs and features on science, literature, arts, or international affairs.

Reading is on terminal decline. People spend far more in front of screens - both television's and computer - than leafing through pages. Granted, they read online: jokes, anecdotes, puzzles, porn, and e-mail or IM chit-chat. Those who try to tackle longer bits of text, tire soon and revert to images or sounds.

With few exceptions, the "new media" are a hodgepodge of sectarian views and fabricated "news". The few credible sources of reliable information have long been drowned in a cacophony of fakes and phonies or gone out of business.

It is a sad mockery of the idea of progress. The more texts we make available online, the more research is published, the more books are written - the less educated people are, the more they rely on visuals and soundbites rather than the written word, the more they seek to escape reality and be anesthetized rather than be challenged and provoked.

Even the ever-slimming minority who do wish to be enlightened are inundated by a suffocating and unmanageable avalanche of indiscriminate data, comprised of both real and pseudo-science. There is no way to tell the two apart, so a "democracy of knowledge" reigns where everyone is equally qualified and everything goes and is equally merited. This relativism is dooming the twenty-first century to become the beginning of a new "Dark Age", hopefully a mere interregnum between two periods of genuine enlightenment.

The Demise of the Expert and the Ascendance of the Layman

In the age of Web 2.0, authoritative expertise is slowly waning. The layman reasserts herself as a fount of collective mob "wisdom". Information - unsorted, raw, sometimes wrong - substitutes for structured, meaningful knowledge. Gatekeepers - intellectuals, academics, scientists, and editors, publishers, record companies, studios - are summarily and rudely dispensed with. Crowdsourcing (user-generated content, aggregated for commercial ends by online providers) replaces single authorship.

A confluence of trends conspired to bring about these ominous developments:

1. An increasingly [narcissistic culture](#) that encourages self-absorption, haughtiness, [defiance of authority](#), a sense of [entitlement](#) to special treatment and [omniscience](#), incommensurate with [actual achievements](#). [Narcissistic and vain Internet users](#) feel that they are superior and reject all claims to expertise by trained professionals.
2. The emergence of technologies that remove all barriers to entry and allow equal rights and powers to all users, regardless of their qualifications, knowledge, or skills: wikis (the most egregious manifestation of which is the [Wikipedia](#)), search engines (Google), blogging (that is rapidly supplanting professionally-written media), and mobiles (cell) phones equipped with cameras for ersatz documentation and photojournalism. [Disintermediation](#) rendered redundant all brokers, intermediaries, and gatekeepers of knowledge and quality of content.

3. A series of species-threatening debacles by scientists and experts who collaborated with the darkest, vilest, and most evil regimes humanity has ever produced. This sell-out compromised their moral authority and standing. The common folk began not only to question their ethical credentials and claim to intellectual leadership, but also to paranoidly suspect their motives and actions, supervise, and restrict them. Spates of scandals by scientists who falsified lab reports and intellectuals who plagiarized earlier works did nothing to improve the image of academe and its denizens.

4. By its very nature, science as a discipline and, more particularly, [scientific theories](#), aspire to discover the "true" and "real", but are doomed to never get there. Indeed, unlike religion, for instance, science claims no absolutes and proudly confesses to being merely asymptotic to the Truth. In medicine, physics, and biology, today's knowledge is tomorrow's refuse. Yet, in this day and age of maximal uncertainty, minimal personal safety, raging epidemics, culture shocks and kaleidoscopic technological change, people need assurances and seek immutables.

Inevitably, this gave rise to a host of occult and esoteric "sciences", branches of "knowledge", and practices, including the fervid observance of religious fundamentalist rites and edicts. These offered alternative models of the Universe, replete with parent-figures, predictability, and primitive rituals of self-defense in an essentially hostile world. As functional literacy crumbled and people's intellectual diet shifted from books to reality TV, sitcoms, and soap operas, the old-new disciplines offer instant gratification that requires little by way of cerebral exertion and critical faculties.

Moreover, scientific theories are now considered as mere "opinions" to be either "believed" or "disbelieved", but no longer proved, or, rather falsified. In his novel, "Exit Ghost", Philip Roth puts this telling exclamation in the mouth of the protagonist, Richard Kliman: "(T)hese are people who don't believe in knowledge".

The Internet tapped into this need to "plug and play" with little or no training and preparation. Its architecture is open, its technologies basic and "user-friendly", its users largely anonymous, its code of conduct (Netiquette) flexible and tolerant, and the "freedoms" it espouses are anarchic and indiscriminate.

The first half of the 20th century was widely thought to be the terrible culmination of Enlightenment rationalism. Hence its recent worrisome retreat. Moral and knowledge relativism (e.g., deconstruction) took over. Technology obliged and hordes of "users" applied it to gnaw at the edifice of three centuries of Western civilization as we know it.

The Decline of Text and the Re-emergence of the Visual

YouTube has already replaced Yahoo and will shortly overtake Google as the primary Web search destination among children and teenagers. Its repository of videos - hitherto mere entertainment - is now beginning to also serve as a reference library and a news source. This development seals the fate of text. It is being dethroned as the main vehicle for the delivery of information, insight, and opinion.

This is only the latest manifestation in a plague of intellectual turpitude that is threatening to undermine not only the foundations of our civilization, but also our survival as a species.

People have forgotten how to calculate because they now use calculators; they don't bother to memorize facts or poetry because it is all available online; they read less, much less, because they are inundated with sounds and sights, precious few of which convey any useful information or foster personal development.

A picture is worth 1000 words. But, words have succeeded pictograms and ideograms and hieroglyphs for good reasons. The need to combine the symbols of the alphabet so as to render intelligible and communicable one's inner states of mind is conducive to abstract thought. It is also economical; imposes mental discipline; develops the imagination; engenders synoptic thinking; and preserves the idiosyncrasies and the uniqueness of both the author and its cultural-social milieu. Visual are a poor substitute as far as these functions go.

In a YouTube world, literacy will have vanished and with it knowledge. Visuals and graphics can convey information, but they rarely proffer organizing principles and theories. They are explicit and thus shallow and provide no true insight. They demand little of the passive viewer and, therefore, are anti-intellectual. In this last characteristic, they are true to the Internet and its anti-elitist, anti-expert, mob-wisdom-driven spirit. Visuals encourage us to outsource our "a-ha" moments and the formation of our worldview and to entrust them to the editorial predilections of faceless crowds of often ignorant strangers.

Moreover, the sheer quantity of material out there makes it impossible to tell apart true and false and to distinguish between trash and quality. Inundated by "user-generated-content" and disoriented, future generations will lose their ability to discriminate. YouTube is only the logical culmination of processes started by the Web. The end result will be an entropy of information, with bits isotropically distributed across vast farms of servers and consumed by intellectual zombies who can't tell the difference and don't care to.

Twitter: [Narcissism](#) or Age-old Communication?

It has become fashionable to castigate Twitter - the microblogging service - as an expression of rampant narcissism. Yet, narcissists are verbose and they do not take kindly to limitations imposed on them by third parties. They feel entitled to special treatment and are rebellious. They are enamored with their own voice. Thus, rather than gratify the average narcissist and provide him or her with [narcissistic supply](#) (attention, adulation, affirmation), Twitter is actually liable to cause [narcissistic injury](#).

From the dawn of civilization, when writing was the province of the few and esoteric, people have been memorizing information and communicating it using truncated, mnemonic bursts. Sizable swathes of the Bible resemble Twitter-like prose. Poetry, especially blank verse one, is Twitterish. To this very day, newspaper headlines seek to convey information in digestible, resounding bits and bites. By comparison, the novel - an avalanche of text - is a newfangled phenomenon.

Twitter is telegraphic, but this need not impinge on the language skills of its users. On the contrary, coerced into its Procrustean dialog box, many interlocutors become inventive and creativity reigns as bloggers go atwitter.

Indeed, Twitter is the digital reincarnation of the telegraph, the telegram, the telex, the text message (SMS, as we Europeans call it), and other forms of business-like, data-rich, direct

communication. Like them, it forces its recipients to use their own imagination and creativity to decipher the code and flesh it out with rich and vivid details. It is unlikely to vanish, though it may well be supplanted by even more pecuniary modes of online discourse.

Gmail not Safe, Google not Comprehensive

I. Gmail Not Safe

Gmail has a gaping security hole, hitherto ignored by pundits, users, and Google (the company that owns and operates Gmail) itself.

The login page of Gmail sports an SSL "lock". This means that all the information exchanged with Gmail's servers - the user's name and password - is encrypted. A hacker who intercepted the communicated data would find it difficult and time-consuming to decrypt them.

Yet, once past the login page, Gmail reverts to plain text, non-encrypted pages. These can easily be tapped into by hackers, especially when such data travels over unsecured, unencrypted wireless networks ("hot spots"). To make clear: while a hacker may not be able to get hold of your username and password, he can still read all your e-mail messages!

Google is aware of this vulnerability. Tucked at the bottom of the "account settings" page there is a button allowing the user to switch to "https browser session" (in other words, to encrypt all the pages subsequent to the login). Gmail Help advises Gmail users to choose the always-on https option if they are using unsafe computers (for instance, in Internet cafes) and/or non-secure communication networks. They explicitly warn against possible identity theft ("impersonation") and exposure of bank statements and other damaging information if the user does not change his or her default settings.

But how many users tweak their settings in such depth? Very few. Why doesn't Gmail warn its users that they are being switched from the secure login page to a free-for-all, hacker-friendly mode with unencrypted pages? It's anybody's guess. Gmail provide a hint, though: https pages are slower to load. Gmail knowingly sacrifices its users' safety and security on the altar of headline-catching performance.

II. Google not Comprehensive

I have been tracing 154 keywords on Google, most of them over the last seven years. In the last two years, the number of search results for these keywords combined has declined by 37%. For one fifth of these keywords, the number of search results declined by 80% and more! This is at a time of exponential growth in the number of Web pages (not to mention deep databases).

All keywords pertain to actual topics and to individuals who have never ceased their activity. The keywords are not clustered or related and cover disparate topics such as mental health; US foreign policy; Balkan history and politics; philosophy and ethics; economics and finance, etc.

The conclusion is inescapable: Google's coverage has declined precipitously in quantitative terms. This drop in search results also pertains to Google News.

I chose 10 prime news Websites and used their own, on-site search engines to generate results for my list of keywords. Thus, from each news Website, I obtained a list of articles in which one of my keywords featured in the title. The Websites maintained archive pages for their columnists, so I had also detailed lists of all the articles published by specific columnists on specific news Websites.

I now reverted to Google News. First, I typed the name of the columnist alone and got a total of his or her articles. Then I added the name of the news Website to the query and obtained a sub-total of articles published by the columnist in the chosen news website. The results were shocking: typically, Google News covered less than one third of the articles published by any given columnist and, in many cases, less than one tenth. I then tried the same search on Google and was able to find there many news articles not included in the Google News SERPs (results pages). Yet, even put together, Google and Google News covered less than one half of the items.

When I tried the list of keywords, the results improved, albeit marginally: Google News included about 40% of the articles I found on the various news Websites. Together with Google, the figure rose to 60%.

Still, this means that Google News excludes more than one half of all the articles published on the Web. Add this to Google's Incredibly Shrinking Search Results and we are left with three possible explanations: (1) Google has run out of server space (not likely); (2) Google's algorithms are too exclusive and restrictive (very likely); (3) Google is deploying some kind of content censorship or editorship (I found no trace of such behavior).

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Regulate the Internet!

With the advent of Web 2.0 and UGC (User-generated Content), the Internet has completed its transformation into an anarchic and lawless ochlocracy (mob-rule). The Internet is a mass medium and like all media it must be regulated. The laws that apply offline must and, in due time, as legislators are exposed to the less savory aspects of the Web, will apply online.

Inevitably, the legal situation varies across countries and continents. Internet penetration has reached different levels at different times in different places. Thus, the following observations and recommendations are not universally valid or applicable. In some locales, various aspects of cyberspace have been tackled by governments and legislatures, albeit rarely fully and satisfactorily. In others, the field is wide open and the Internet resembles the Wild West at its worst moments.

Laws and regulations passed and intermittently enforced against cybercrime attempt to prevent and constrain only a few obviously illegal acts. Spammers, spyware purveyors, child pornographers, and terrorists are the blatant tip of a much subtler iceberg of malicious and pernicious misconduct.

These are the minimal, initial steps that have to be taken in order to forestall a meltdown of this indispensable utility, the Internet:

1. Slander, Libel, and Defamation vs. Free Speech

The legal status of owners, editors, administrators, Webmasters and moderators of Websites, bulletin boards, forums, boards, groups, lists, wikis, UGC Websites, online news sources, search engines and portals, and blogging communities should be equated to that of publishers and journalists in the print and electronic media. Consequently, they should be held liable to civil damages and to criminal charges arising from actionable libel and defamation posted on their properties if they don't act promptly to comprehensively remedy said libel and defamation.

Internet Service Providers (ISPs) and hosting services should be obligated to disclose to law enforcement agencies and/or to plaintiffs the full personal data of anyone who break the law by publishing or sending libelous, slanderous, defamatory, harassing, or threatening content on or via the Internet.

2. Privacy

The right to privacy of computer users should be embedded in consumer protection laws, allowing for criminal penalties to be imposed on the perpetrators of privacy breaches and for civil damages to the victims.

Individuals and firms who accumulate personal data of suppliers, employees, customers and users or who gain access to them in the normal course of business should be obliged to protect and safeguard such information and to promptly notify those potentially affected of any

incident involving the compromise of their personal data. Failure to act reasonably diligently to prevent identity theft should become a criminal offense.

Exceptions should be made only for law enforcement needs and even then only pursuant to warrants issued by especially-designated courts (the equivalent of FISA-mandated courts in the USA).

3. Copyright and Intellectual Property

Intellectual property laws should be considerably relaxed and fair use provisions considerably expanded to accommodate and reflect the nature, possibilities, and constraints of digital renditions of information.

Owners, editors, administrators, Webmasters and moderators of Websites, bulletin boards, forums, boards, groups, lists, wikis, UGC Websites, online news sources, search engines and portals, and blogging communities should be held liable to civil damages and to criminal charges arising from infringements of copyrights and other intellectual property rights posted on or via their properties if they don't act promptly to comprehensively remedy said infringements.

Internet Service Providers (ISPs) and hosting services should be obligated to disclose to law enforcement agencies and/or to plaintiffs the full personal data of anyone who break the law by violating copyrights and other intellectual property rights on or via the Internet.

4. Anonymity

Anonymous or pseudonymous publishing of libelous, slanderous, defamatory, harassing, or threatening content on the Internet - including via e-mail, instant messaging, mashups, or wikis - should be explicitly and specifically made illegal.

Owners, editors, administrators, Webmasters, and moderators of Websites, bulletin boards, forums, boards, groups, lists, wikis, UGC Websites, online news sources, search engines and portals, and blogging communities should be made responsible to obtain the full names and countries of domicile of registered users, posters, contributors, and participants. Upon the first request of an injured party or a law enforcement agency, they should be obligated to make these personal data public in conjunction with libelous, slanderous, defamatory, harassing, or threatening content published.

Providing false personal data to owners, editors, administrators, and moderators of bulletin boards, forums, boards, groups, lists, wikis, UGC Websites, online news sources, and blogging communities should be made a criminal offense as well as give rise to civil damages.

Providing false personal data or remaining anonymous while sending or posting libelous, slanderous, defamatory, harassing, or threatening correspondence (for instance, via e-mail) should be made a criminal offense as well as give rise to civil damages.

Internet Service Providers (ISPs) and hosting services should be obligated to disclose to law enforcement agencies and/or to plaintiffs the full personal data of anyone who break the law

by anonymously or pseudonymously publishing or sending libelous, slanderous, defamatory, harassing, or threatening content on or via the Internet.

5. Licensing and Anti-trust

All licensing requirements, content laws, and regulatory supervision that now apply to the print and electronic media should apply to Websites, bulletin boards, forums, boards, groups, lists, wikis, UGC Websites, search engines and portals, online news sources, and blogging communities. The Internet should be subjected to supervision and regulation by the relevant governmental oversight agencies (e.g., in the USA: FCC, FTC, SEC, and others).

Competition (anti-trust) laws and regulations shall be extended to apply to the Internet or, where they are already applicable, shall be enforced to ensure search neutrality, equal access to information, equal access to computing platforms, and fair competition.

6. Truth in Advertising and Misrepresentations

The owners, editors, administrators, Webmasters, and moderators of Websites, bulletin boards, forums, boards, groups, lists, wikis, UGC Websites, online news sources, search engines and portals, and blogging communities should have to truthfully describe the nature of their Internet properties and all other pertinent information items that may be required by a reasonable user - including their ownership structure, privacy policies, sources of information, affiliations, potential and actual conflicts of interest, outstanding lawsuits, risks associated with making use of their Internet properties and other pertinent disclosures.

Misrepresentations should be explicitly and specifically outlawed and carry both criminal penalties and civil liabilities.

It is not too late to restore a semblance of lawfulness to the Internet. True, the Web has been hijacked by stalkers, criminals, big business, and scammers. Even honest users are clueless as to what is and is not allowed. As far as the overwhelming majority of surfers are concerned, voluntary codes of conduct and the much-vaunted Netiquette have utterly failed to render cyberspace safe or, indeed, serviceable. The invisible hand of the market is, indeed, nowhere to be seen.

It is time for legislators and regulators to step in. Even a moderate dose of legislation and the willingness not to succumb to either to mob or to business pressures will go a long way towards restoring the Internet to its original purpose: the civilized and lawful - not to mention pleasurable - exchange of information and opinion over computer networks.

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Bright Planet, Deep Web

www.allwatchers.com and www.allreaders.com are web sites in the sense that a file is downloaded to the user's browser when he or she surfs to these addresses. But that's where the similarity ends. These web pages are front-ends, gates to underlying databases. The databases contain records regarding the plots, themes, characters and other features of, respectively, movies and books. Every user-query generates a unique web page whose contents are determined by the query parameters. The number of singular pages thus capable of being generated is mind boggling. Search engines operate on the same principle - vary the search parameters slightly and totally new pages are generated. It is a dynamic, user-responsive and chimerical sort of web.

These are good examples of what www.brightplanet.com call the "Deep Web" (previously inaccurately described as the "Unknown or Invisible Internet"). They believe that the Deep Web is 500 times the size of the "Surface Internet" (a portion of which is spidered by traditional search engines). This translates to c. 7500 TERAbytes of data (versus 19 terabytes in the whole known web, excluding the databases of the search engines themselves) - or 550 billion documents organized in 100,000 deep web sites. By comparison, Google, the most comprehensive search engine ever, stores 1.4 billion documents in its immense caches at www.google.com. The natural inclination to dismiss these pages of data as mere re-arrangements of the same information is wrong. Actually, this underground ocean of covertintelligence is often more valuable than the information freely available or easily accessible on the surface. Hence the ability of c. 5% of these databases to charge their users subscription and membership fees. The average deep web site receives 50% more traffic than a typical surface site and is much more linked to by other sites. Yet it is transparent to classic search engines and little known to the surfing public.

It was only a question of time before someone came up with a search technology to tap these depths (www.completeplanet.com).

LexiBot, in the words of its inventors, is...

"...the first and only search technology capable of identifying, retrieving, qualifying, classifying and organizing "deep" and "surface" content from the World Wide Web. The LexiBot allows searchers to dive deep and explore hidden data from multiple sources simultaneously using directed queries. Businesses, researchers and consumers now have access to the most valuable and hard-to-find information on the Web and can retrieve it with pinpoint accuracy."

It places dozens of queries, in dozens of threads simultaneously and spiders the results (rather as a "first generation" search engine would do). This could prove very useful with massive databases such as the human genome, weather patterns, simulations of nuclear explosions, thematic, multi-featured databases, intelligent agents (e.g., shopping bots) and third generation search engines. It could also have implications on the wireless internet (for instance, in analysing and generating location-specific advertising) and on e-commerce (which amounts to the dynamic serving of web documents).

This transition from the static to the dynamic, from the given to the generated, from the one-dimensionally linked to the multi-dimensionally hyperlinked, from the deterministic content to the contingent, heuristically-created and uncertain content - is the real revolution and the future of the web. Search engines have lost their efficacy as gateways. Portals have taken over but most people now use internal links (within the same web site) to get from one place to another. This is where the deep web comes in. Databases are about internal links. Hitherto they existed in splendid isolation, universes closed but to the most persistent and knowledgeable. This may be about to change. The flood of quality relevant information this will unleash will dramatically dwarf anything that preceded it.

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The Seamless Internet

<http://www.enfish.com/>

The hype over ubiquitous (or pervasive) computing (computers everywhere) has masked a potentially more momentous development. It is the convergence of computing devices interfaces with web (or other) content. Years ago - after Bill Gates overcame his misplaced scepticism - Microsoft introduced their "internet-ready" applications. Its word processing software ("Word"), other Office applications, and the Windows operating system handle both "local" documents (resident on the user's computer) and web pages smoothly and seamlessly. The transition between the desktop or laptop interfaces and the web is today effortlessly transparent.

The introduction of e-book readers and MP3 players has blurred the anachronistic distinction between hardware and software. Common speech reflects this fact. When we say "e-book", we mean both the device and the content we access on it. As technologies such as digital ink and printable integrated circuits mature - hardware and software will have completed their inevitable merger.

This erasure of boundaries has led to the emergence of knowledge management solutions and personal and shared workspaces. The LOCATION of a document (one's own computer, a colleague's PDA, or a web page) has become irrelevant. The NATURE of the document (e-mail message, text file, video snippet, soundbite) is equally unimportant. The SOURCE of the document (its extension, which tells us on which software it was created and can be read) is increasingly meaningless. Universal languages (such as Java) allow devices and applications to talk to each other. What matters are accessibility and logical and user-friendly work-flows.

Enter Enfish. In its own words, it provides:

"...Personalized portal solution linking personal and corporate knowledge with relevant information from the Internet, ...live-in desktop environment providing co-branding and customization opportunities on and offline, a unique, private communication channel to users that can be used also for eBusiness solutions, ...Knowledge Management solution that requires no user set-up or configuration."

The principle is simple enough - but the experience is liberating (try their online flash demo). Suddenly, instead of juggling dozens of windows, a single interface provides the tortured user (that's I) with access to all his applications: e-mail, contacts, documents, the company's intranet or network, the web and OPC's (other people's computers, other networks, other intranets). There is only a single screen and it is dynamically and automatically updated to respond to the changing information needs of the user.

"The power underlying Enfish Onespace is its patented DEX 'engine.' This technology creates a master, cross-referenced index of the contents of a user's email, documents and Internet information.

The Enfish engine then uses this master index as a basis to understand what is relevant to a user, and to provide them with appropriate information. In this manner Enfish Onespace 'personalizes' the Internet for each user, automatically connecting relevant information and services from the Internet with the user's desktop information.

As an example, by clicking on a person or company, Enfish Onespace automatically assembles a page that brings together related emails, documents, contact information, appointments, news and relevant news headlines from the Internet. This is accomplished without the user working to find and organize this information. By having everything in one place and in context, our users are more informed and better prepared to perform tasks such as handling a phone call or preparing for a business meeting. This results in ... benefits in productivity and efficiency."

It is, indeed, addictive. The inevitable advent of transparent computing (smart houses, smart cards, smart clothes, smart appliances, wireless Internet) - coupled with the single GUI (Graphic User Interface) approach can spell revolution in our habits. Information will be available to us anywhere, through an identical screen, communicated instantly and accurately from device to device, from one appliance to another and from one location to the next as we move. The underlying software and hardware will become as arcane and mysterious as are the ASCII and ASSEMBLY languages to the average computer user today. It will be a real partnership of biological and artificial intelligence on the move.

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The Polyglot Internet

<http://www.everymail.com/>

The Internet started off as a purely American phenomenon and seemed to perpetuate the fast-emerging dominance of the English language. A negligible minority of web sites were in other languages. Software applications were chauvinistically ill-prepared (and still are) to deal with anything but English. And the vast majority of net users were residents of the two North-American colossi, chiefly the USA.

All this started to change rapidly about two years ago. Early this year, the number of American users of the Net was surpassed by the swelling tide of European and Japanese ones. Non-English web sites are proliferating as well. The advent of the wireless Internet - more widespread outside the USA - is likely to strengthen this unmistakable trend. By 2005, certain analysts expect non-English speakers to make up to 70% of all netizens. This fragmentation of an hitherto unprecedentedly homogeneous market - presents both opportunities and costs. It is much more expensive to market in ten languages than it is in one. Everything - from e-mail to supply chains has to be re-tooled or customized.

It is easy to translate text in cyberspace. Various automated, web-based, and free applications (such as [Babylon](#) or [Travlang](#)) cater to the needs of the casual user who doesn't mind the quality of the end-result. Virtually every search engine, portal and directory offers access to these or similar services.

But straightforward translation is only one kind of solution to the tower of Babel that the Internet is bound to become.

Enter WorldWalla. A while back I used their multi-lingual e-mail application. It converted text I typed on a virtual keyboard to images (of characters). My addressees received the message in any language I selected. It was more than cool. It was liberating. Along the same vein, WorldWalla's software allows application and content developers to work in 66 languages. In their own words:

"WorldWalla allows device manufacturers and application developers to meet this challenge by developing products that support any language. This simplifies testing and configuration management, accelerates time to market, lowers unit costs and allows companies to quickly and easily enter new markets and offer greater levels of personalization and customer satisfaction."

GlobalVu converts text to device-independent images. GlobalEase Web is a "Java-based multilingual text input and display engine". It includes virtual keyboards, front-end processors, and a contextual processor and text layout engine for left to right and right to left language formatting. They have versions tailored to the specifications of mobile devices.

The secret is in generating and processing images (bitmaps), compressing them and transmitting them. In a way, WordWalla generates a FACSIMILE message (the kind we receive on our fax machines) every time text is exchanged. It is transparent to both sender and receiver - and it makes a user-driven polyglot Internet a reality.

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Deja Googled

<http://groups.google.com/>

http://groups.google.com/googlegroups/archive_announce.html

The Internet may have started as the fervent brainchild of DARPA, the US defence agency - but it quickly evolved into a network of computers at the service of a community. Academics around the world used it to communicate, compare results, compute, interact and flame each other. The ethos of the community as content-creator, source of information, fount of emotional sustenance, peer group, and social substitute is well embedded in the very fabric of the Net. Millions of members in free, advertising or subscription financed, mega-sites such as Geocities, AOL, Yahoo and Tripod generate more bits and bytes than the rest of the Internet combined. This traffic emanates from discussion groups, announcement (mailing) lists, newsgroups, and content sites (such as Suite101 and Webseed). Even the occasional visitor can find priceless gems of knowledge and opinion in the mound of trash and frivolity that these parts of the web have become.

The emergence of search engines and directories which cater only to this (sizeable) market segment was to be expected. By far the most comprehensive (and, thus, less discriminating) was Deja. It spidered and took in the exploding newsgroups (Usenet) scene with its tens of thousands of daily messages. When it was taken over by Google, its archives contained more than 500 million messages, cross-indexed every which way and pertaining to every possible (and many impossible) a topic.

Google is by far the most popular search engine yet, having surpassed the more veteran Northern Lights, Fast, and Alta Vista. Its mind defying database (more than 1.3 billion web pages), its caching technology (making it, in effect, one of the biggest libraries on earth) and its site ranking (by popularity and links-over) have rendered it unbeatable. Yet, its efforts to integrate the treasure trove that is Deja and adapt it to the Google search interface have hitherto been spectacularly unsuccessful (though it finally made it two and a half months after the purchase). So much so, that it gave birth to a protest movement.

Bickering and bad tempered flaming (often bordering on the deranged, the racial, or the stalking) are the more repulsive aspects of the Usenet groups. But at the heart of the debate this time is no ordinary sadistic venting. The issue is: who owns content generated by the public at large on computers funded by tax dollars? Can a commercial enterprise own and monopolize the fruits of the collective effort of millions of individuals from all over the world? Or should such intellectual property remain in the public domain, perhaps maintained by public institutions (such as the Library of Congress)? Should open source movements gain access to Deja's source code in order to launch Deja II? And who owns the copyright to all these messages (theoretically, the authors)? Google, as Deja before it, is offering compilations of this content, the copyright to which it does not and cannot own. The very legal concept of intellectual property is at the crux of this virtual conflict.

Google was, thus, compelled to offer free access to the CONTENT of the Deja archives to alternative (non-Google) archiving systems. But it remains mum on the search programming code and the user interface. Already one such open source group (called Dela News) is coalescing, although it is not clear who will bear the costs of the gigantic storage and processing such a project would require. Dela wants to have a physical copy of the archive deposited in trust with a dot org.

This raises a host of no less fascinating subjects. The Deja Usenet search technology, programming code, and systems are inextricable and almost indistinguishable from the Usenet archive itself. Without these elements - structural as well as dynamic - there will be no archive and no way to extract meaningful information from the chaotic bedlam that is the Usenet environment. In this case, the information lies in the ordering and classification of raw data and not in the content itself. This is why the open source proponents demand that Google share both content and the tools to access it. Google's hasty and improvised unplugging of Deja in February only served to aggravate the die-hard fans of erstwhile Deja.

The Usenet is not only the refuge of pedophiles and neo-Nazis. It includes thousands of academically rigorous and research inclined discussion groups which morph with intellectual trends and fashionable subjects. More than twenty years of wisdom and erudition are buried in servers all over the world. Scholars often visit Usenet in their pursuit of complementary knowledge or expert advice. The Usenet is also the documentation of Western intellectual history in the last three decades. In it invaluable. Google's decision to abandon the internal links between Deja messages means the disintegration of the hyperlinked fabric of this resource - unless Google comes up with an alternative (and expensive) solution.

Google is offering a better, faster, more multi-layered and multi-faceted access to the entire archive. But its brush with the more abrasive side of the open source movement brought to the surface long suppressed issues. This may be the single most important contribution of this otherwise not so opportune transaction.

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Maps of Cyberspace

"Cyberspace. A consensual hallucination experienced daily by billions of legitimate operators, in every nation, by children being taught mathematical concepts... A graphical representation of data abstracted from the banks of every computer in the human system. Unthinkable complexity. Lines of light ranged in the non-space of the mind, clusters and constellations of data. Like city lights, receding..."
(William Gibson, "Neuromancer", 1984, page 51)

<http://www.ebookmap.net/maps.htm>

<http://www.cybergeography.org/atlas/atlas.html>

At first sight, it appears to be a static, cluttered diagram with multicoloured, overlapping squares. Really, it is an extremely powerful way of presenting the dynamics of the emerging e-publishing industry. R2 Consulting has constructed these eBook Industry Maps to "reflect the evolving business models among publishers, conversion houses, digital distribution companies, eBook vendors, online retailers, libraries, library vendors, authors, and many others. These maps are 3-dimensional offering viewers both a high-level orientation to the eBook landscape and an in-depth look at multiple eBook models and the partnerships that have formed within each one." Pass your mouse over any of the squares and a virtual floodgate opens - a universe of interconnected and hyperlinked names, a detailed atlas of who does what to whom.

eBookMap.net is one example of a relatively novel approach to databases and web indexing. The metaphor of cyber-space comes alive in spatial, two and three dimensional map-like representations of the world of knowledge in Cybergeography's online "Atlas". Instead of endless, static and bi-chromatic lists of links - Cybergeography catalogues visual, recombinant vistas with a stunning palette, internal dynamics and an intuitively conveyed sense of inter-relatedness. Hyperlinks are incorporated in the topography and topology of these almost-neural maps.

"These maps of Cyberspaces - cybermaps - help us visualise and comprehend the new digital landscapes beyond our computer screen, in the wires of the global communications networks and vast online information resources. The cybermaps, like maps of the real-world, help us navigate the new information landscapes, as well being objects of aesthetic interest. They have been created by 'cyber-explorers' of many different disciplines, and from all corners of the world. Some of the maps ... in the Atlas of Cyberspaces ... appear familiar, using the cartographic conventions of real-world maps, however, many of the maps are much more abstract representations of electronic spaces, using new metrics and grids."

Navigating these maps is like navigating an inner, familiar, territory.

They come in all shapes and modes: flow charts, quasi-geographical maps, 3-d simulator-like terrains and many others. The "web Stalker" is an experimental web browser which is equipped with mapping functions. The range of applicability is mind boggling.

A (very) partial list:

- The Internet Genome Project - "open-source map of the major conceptual components of the Internet and how they relate to each other".
- Anatomy of a Linux System - Aimed to "...give viewers a concise and comprehensive look at the Linux universe' and at the heart of the poster is a gravity well graphic showing the core software components, surrounded by explanatory text".
- NewMedia 500 - The financial, strategic, and other inter-relationships and interactions between the leading 500 new (web) media firms.
- Internet Industry Map - Ownership and alliances determine status, control, and access in the Internet industry. A revealing organizational chart.
- The Internet Weather Report measures Internet performance, latency periods and downtime based on a sample of 4000 domains.
- Real Time Geographic Visualization of WWW Traffic - a stunning, 3-d representation of web usage and traffic statistics the world over.

WebBrain and Map.net provide a graphic rendition of the Open Directory Project. The thematic structure of the ODP is instantly discernible.

The WebMap is a visual, multi-category directory which contains 2,000,000 web sites. The user can zoom in and out of sub-categories and "unlock" their contents.

Maps help write fiction, trace a user's clickpath (replete with clickable web sites), capture Usenet and chat interactions (threads), plot search results (though Alta Vista discontinued its mapping service and Yahoo!3D is no more), bookmark web destinations, and navigate through complex sites.

Different metaphors are used as interface. Web sites are represented as plots of land, stars (whose brightness corresponds to the web site's popularity ranking), amino-acids in DNA-like constellations, topographical maps of the ocean depths, buildings in an urban landscape, or other objects in a pastoral setting. Virtual Reality (VR) maps allow information to be simultaneously browsed by teams of collaborators, sometimes represented as avatars in a fully immersive environment. In many applications, the user is expected to fly amongst the data items in virtual landscapes. With the advent of sophisticated GUI's (Graphic User Interfaces) and VRML (Virtual Reality Markup Language) - these maps may well show us the way to a more colourful and user-friendly future.

The Map as the New Media Metaphor

Moving images used to be hostages to screens, both large (cinema) and small (television). But, the advent of broadband and the Internet has rendered visuals independent of specific hardware and, therefore, portable. One can watch video on a bewildering array of devices, wired and wireless, and then e-mail the images, embed them in blogs, upload and download them, store them online ("cloud computing") or offline, and, in general, use them as raw material in mashups or other creative endeavours.

With the aid of set-top boxes such as TiVo's, consumers are no longer dependent on schedules imposed by media companies (broadcasters and cable operators). Time shifting devices - starting with the humble VCR (Video Cassette Recorder) - have altered the equation: one can tape and watch programming later or simply download it from online repositories of content such as YouTube or Hulu when convenient and desirable.

Inevitably, these technological transitions have altered the media experience by fragmenting the market for content. Every viewer now abides by his or her own idiosyncratic program schedule and narrowcasts to "friends" on massive social networks. Everyone is both a market for media and a distribution channel with the added value of his or her commentary, self-generated content, and hyperlinked references.

Mutability cum portability inevitably lead to anarchy. To sort our way through this chaotic mayhem, we have hitherto resorted to search engines, directories, trusted guides, and the like. But, often these Web 1.0 tools fall far short of our needs and expectations. Built to data mine and sift through hierarchical databases, they fail miserably when confronted with multilayered, ever-shifting, chimerical networks of content-spewing multi-user interactions.

The future is in mapping. Maps are the perfect metaphor for our technological age. It is time to discard previous metaphors: the filing cabinet or library (the WIMP GUI - Graphic User Interface - of the personal computer, which included windows, icons, menus, and a pointer) and the screen (the Internet browser).

Cell (mobile) phones will be instrumental in the ascendance of the map. By offering GPS and geolocation services, cellphones are fostering in their users geographical awareness. The leap from maps that refer to the user's location in the real world to maps that relate to the user's coordinates in cyberspace is small and unavoidable. Ultimately, the two will intermesh and overlap: users will derive data from the Internet and superimpose them on their physical environment in order to enhance their experience, or to obtain more and better information regarding objects and people in their surroundings.

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The Universal Intuitive Interface

The history of technology is the history of interfaces - their successes and failures. The GUI (the Graphic User Interface), which replaced cumbersome and unwieldy text-based interfaces (DOS), became an integral part of the astounding success of the PC.

Yet, all computer interfaces hitherto share the same growth-stunting problems. They are:

- a. Non-transparency - the workings of the hardware and software (the "plumbing") show through;
- b. Non-ubiquity - the interface is connected to a specific machine or application and, thus, is non-transportable and non-transferrable;
- c. Arcane user-unfriendliness (i.e., to operate, the interfaces require specific knowledge and the entry of sequences of commands using a specialized syntax).

Even the most "user-friendly" interface is way too complicated for the typical user. The average PC is hundreds of times more complex than your living-room TV. Even the VCR or DVD players - far less complex than the PC - are challenging. How many people use the full range of a VCR's options?

The ultimate interface should be:

- a. Self-assembling - it should reconstruct itself, from time to time, fluidly;
- b. Self-recursive - it should be able to observe and analyze its own behavior;
- c. Learning-capable - it should learn from its experience;
- d. Self-modifying - it should modify itself according to its accumulated experience;
- e. History-recording;
- f. Media indifferent (it should span and encompass your hard disk, movable media, network, and the Web).

The interface of the future must possess a "picture of the world" (a-la artificial intelligence), preferably including itself, the user, and their cumulative interactions.

It must regard all other "intelligent" machines in its "world" (the user being only one of them) as its "clients" and be able to communicate with them in a natural language.

Its universe must be seamless: the physical or virtual location of files or hardware or software or applets or servers or communication lines or information and so on must be irrelevant.

It will probably be peer-orientated (no hierarchy).

I call it "the intuitive universal interface".

The new media technologies were designed by engineers and programmers - not by marketing people and users. The interface of the future will reflect the needs, wishes, limitations, and

skills of users. This is a revolutionary shift and a natural outcome of the takeover of the Internet by governments and bottom line orientated corporations. The interface of the future will seek to enhance usage and enrich the user's experience - not to win technological beauty contests. It is a welcome transition and long overdue.

The Search Engines of the Future

The search engines of the future are likely to offer the following:

1. A seamless search of your hard disk, movable media, network, and the Web using a common interface and the same dialog.
2. Localized search results with relevant advertising using geolocation services.
3. Alerts in search results regarding HTML pages that execute malicious code (spyware, adware, Trojan downloaders) when you visit them (already available from Google and Yahoo).
4. WHOIS records specific to the domains in search results.

Note on the iPhone - Interview granted to San Jose Mercury Sun, June 2007

The iPhone is the culmination and reification of a few such trends and, to hazard a guess, will, indeed, be proven in hindsight to have been even more important than the iPod or even the Blackberry. But importance does not always translate to sales. In commercial terms, the iPhone is comparable to the Mac, not to the iPod. It is too geeky and nerdy to become a household staple. It will be supplanted by something simpler to operate, accessible, and less intimidating, not to mention less expensive and more universal (e.g., not pledged to one phone service provider, like AT&T).

So, why is it important?

Because, though severely limited by way of options and features, the iPhone embodies the seamless convergence of erstwhile separate appliances such as the digital camera, the MP player, the mobile phone, voicemail, and the PC. It is, therefore, the first true proponent of ubiquitous (anywhere) computing. Its connection to iTunes also makes it the first representative of a workable on-the-go infotainment center (though mobile phone are far from ideal venues as far as video goes).

Doubtlessly, it will be succeeded by far more versatile and feature-rich versions. Undoubtedly, it will face stiff competition. But, whether like iPod, it will maintain a first mover advantage remains to be seen. I doubt it.

Perception and Representation in Analog and Digital Cameras

The digital camera profoundly affects the way we perceive and represent the world around us on "film".

To start with, the user of the analog camera used to watch the world, however indirectly. All that stood between him and reality was the viewer of his apparatus. He recorded what he saw "out there".

In contrast, the user of the digital camera watches a representation of the world on a screen. He records what he sees on the screen of his gadget. He rarely glances up to gaze directly at his subject matter.

The digital camera is more forgiving and permissive. Errors can be instantly deleted. The whole experience is characterized by an urgency and immediacy that is absent from the analog equivalent. The digital camera allows its user to experiment with cost-free and, therefore, risk-free alternatives. It transforms the whole procedure of shooting pictures into a spontaneous, even irreverent, experience.

Environmental facts that used to serve as external constraints with the analog camera - the quantity and angle of light, for instance - are now compensated for by special settings in its digital successor. The typical gadget provides for preset "templates" that capture the moment in an optimal manner, removing obstacles and limitations posed by the photographer's physical surroundings.

The digital photo is never a finished product. It can be downloaded onto a storage device (a computer's hard disk, the Internet) and there edited with software applications. Reality is thus rendered tentative and negotiable, a declaration of intent rather than a final statement.

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Internet Advertising - What Went Wrong?

The decline in Internet advertising - though paralleled by a similar trend in print advertising - had more serious and irreversible implications. Most content dot.coms were based on ad-driven revenue models. Online advertising was supposed to amortize start-up and operational costs and lead to profitability even as it subsidized free access to costly content.

A similar revenue model has been successfully propping up print periodicals for at least two centuries. But, as opposed to their online counterparts, print products have a few streams of income, not least among them paid subscriptions.

Moreover, print media kept their costs down in good times and bad. Dot.coms devoured their investors' money in a self-destructive and avaricious bacchanalia.

But why did online advertising collapse in the first place? Was it ineffective?

Advertising is a multi-faceted and psychologically complex phenomenon. It imparts information to potential consumers, users, suppliers, investors, the community, or other stakeholders in the firm. It motivates each of these to do his bit: consumers to consume, investors to invest and so on.

But this is not the main function of the advertising dollar. Modern economic signal theory has cast advertising in a new and surprising - though by no means counterintuitive - light.

According to this theory, the role of advertising is to signal to the marketplace the advertiser's resilience, longevity, wealth, clout, and dominance. By splurging money of advertising, the advertiser actually informs us - the "eyeballs" - that it is here to stay, sufficiently affluent to finance its ads, stable, reliable, and dominant.

"If firm X invested a million bucks in advertising - it must be worth more than a million bucks" - goes the signal. "If it invested so much money in promoting its products, it is not a fly-by-night". "If it can throw money at an ad campaign, it is stable and resilient".

This signal is missing in online advertising. It drowns in noise. The online noise to signal ratio was unacceptable to advertisers - so they stopped advertising. When the noise to signal ratio tops a certain level - ads cease to be effective. The readers or spectators become inured to the messages - both explicit and implicit. They tune off.

The noise in online advertising stems from two sources.

A critical element in the signal is lost if the ad is not paid for. Only paid advertising conveys information about the purported health and prospects of the advertiser. Yet, the Internet is flooded with free advertising: free classifieds, free banner ads, ad exchanges. The paid ads drown in this ocean of free ads. There is often no way of telling a paid ad from a free one - without reading the fine print.

Moreover, Internet users are a "captive audience". It is easy to flip ad-besieged channels on TV, or turn the ad-laden leaf of a newspaper. It is close to impossible to avoid an ad on the Net. Banner ads are an integral part of the page. Pop-up ads pop up. Embedded ads are embedded. One needs to install special applications to avoid the harassment.

This leads to desensitization and a revolt of the user. Users resent the intrusion, are incensed by the coercive tactics of advertisers, nerve wrecked by protracted download times, and unnerved by the content of many of the ads. This is not an environment conducive to clinching deals or converting to sales.

There is also the issue of credibility. The bulk of online advertising emanates from dot.coms. Even prior to the recent stock exchange meltdown, these were not considered paragons of rectitude and truth in advertising. People learned to distrust most of what they read in Internet ads. Scorched by scams, false promises, faulty products, shoddy or non-existent customer care, broken links, or all of the above - users learned to ignore Web advertising and relegate it to their mental dust bins.

More about credibility on the Web here:

[The In-Credible Web](#)

Will the medium ever recover? Probably not. As the Internet is taken over by brick-and-mortar corporations and governments, online fare will come to resemble the offline sort. Online ads will be no more than interactive renditions of their offline facsimiles. The revenue model will switch from advertising to subscriptions and "author-pays". The days of free content financed by advertising are over.

This does not mean that the days of free content are over as well. It only means that new, improved, realistic, and clutter-free revenue models will have to be found. There are some interesting developments in [scholarly online publishing](#) as well as in the fields of online reference and self-publishing. But these are early days and the medium is dynamic. Ad-driven content was a failure. The next model may be a roaring success - or yet another dismal defeat.

The Economics of Spam

Also published by United Press International (UPI)

Tennessee resident K. C. "Khan" Smith owes the internet service provider EarthLink \$24 million. According to the CNN, in August 2001 he was slapped with a lawsuit accusing him of violating federal and state Racketeering Influenced and Corrupt Organizations (RICO) statutes, the federal Computer Fraud and Abuse Act of 1984, the federal Electronic Communications Privacy Act of 1986 and numerous other state laws. On July 19, 2002 - having failed to appear in court - the judge ruled against him. Mr. Smith is a spammer.

Brightmail, a vendor of e-mail filters and anti-spam applications warned that close to 5 million spam "attacks" or "bursts" occurred in June 2002 and that spam has mushroomed 450 percent since June 2001. This pace continued unabated well into the beginning of 2004 when the introduction of spam filters began to take effect. PC World concurs.

Between one half and three quarters of all e-mail messages are spam or UCE (Unsolicited Commercial Email) - unsolicited and intrusive commercial ads, mostly concerned with sex, scams, get rich quick schemes, financial services and products, and health articles of dubious provenance. The messages are sent from spoofed or fake e-mail addresses. Some spammers hack into unsecured servers - mainly in China and Korea - to relay their missives anonymously.

Starting in 2003, malicious hackers began using spam to install malware - such as viruses, adware, spyware, and Trojans - on the unprotected personal computers of less savvy users. They thus transform these computers into "zombies", organize them into spam-spewing "bots" (networks), and sell access to them to criminals on penumbral boards and forums all over the Net.

Spam is an industry. Mass e-mailers maintain lists of e-mail addresses, often "harvested" by spamware bots - specialized computer applications - from Web sites. These lists are rented out or sold to marketers who use bulk mail services. They come cheap - c. \$100 for 10 million addresses. Bulk mailers provide servers and bandwidth, charging c. \$300 per million messages sent.

As spam recipients become more inured, ISPs less tolerant, and both more litigious - spammers multiply their efforts in order to maintain the same response rate. Spam works. It is not universally unwanted - which makes it tricky to outlaw. It elicits between 0.1 and 1 percent in positive follow ups, depending on the message. Many messages now include HTML, JavaScript, and ActiveX coding and thus resemble (or actually contain) viruses and Trojans.

Jupiter Media Matrix predicted in 2001 that the number of spam messages annually received by a typical Internet user will double to 1400 and spending on legitimate e-mail marketing will reach \$9.4 billion by 2006 - compared to \$1 billion in 2001. Forrester Research pegs the number at \$4.8 billion in 2003.

More than 2.3-5 billion spam messages are sent daily. eMarketer puts the figures a lot lower at 76 billion messages in 2002. By 2006, daily spam output will soar to c. 15 billion missives, says Radicati Group. Jupiter projects a more modest 268 billion annual messages this year (2005). An average communication costs the spammer 0.00032 cents.

PC World quotes the European Union as pegging the bandwidth costs of spam worldwide in 2002 at \$8-10 billion annually. Other damages include server crashes, time spent purging unwanted messages, lower productivity, aggravation, and increased cost of Internet access.

Inevitably, the spam industry gave rise to an anti-spam industry. According to a Radicati Group report titled "Anti-virus, anti-spam, and content filtering market trends 2002-2006", anti-spam revenues were projected to exceed \$88 million in 2002 - and more than double by 2006. List blockers, report and complaint generators, advocacy groups, registers of known spammers, and spam filters all proliferate. The Wall Street Journal reported in its June 25, 2002 issue about a resurgence of anti-spam startups financed by eager venture capital.

ISPs are bent on preventing abuse - reported by victims - by expunging the accounts of spammers. But the latter simply switch ISPs or sign on with free services like Hotmail and Yahoo! Barriers to entry are getting lower by the day as the costs of hardware, software, and communications plummet.

The use of e-mail and broadband connections by the general population is spreading. Hundreds of thousands of technologically-savvy operators have joined the market in the last five years, as the dotcom bubble burst. Still, Steve Linford of the UK-based Spamhaus.org insists that most spam emanates from c. 80 large operators.

Now, according to Jupiter Media, ISPs and portals are poised to begin to charge advertisers in a tier-based system, replete with premium services. Writing back in 1998, Bill Gates described a solution also espoused by Esther Dyson, chair of the Electronic Frontier Foundation:

"As I first described in my book 'The Road Ahead' in 1995, I expect that eventually you'll be paid to read unsolicited e-mail. You'll tell your e-mail program to discard all unsolicited messages that don't offer an amount of money that you'll choose. If you open a paid message and discover it's from a long-lost friend or somebody else who has a legitimate reason to contact you, you'll be able to cancel the payment. Otherwise, you'll be paid for your time."

Subscribers may not be appreciative of the joint ventures between gatekeepers and inbox clutterers. Moreover, dominant ISPs, such as AT&T and PSINet have recurrently been accused of knowingly collaborating with spammers. ISPs rely on the data traffic that spam generates for their revenues in an ever-harsher business environment.

The Financial Times and others described how WorldCom refuses to ban the sale of spamware over its network, claiming that it does not regulate content. When "pink" (the color of canned spam) contracts came to light, the implicated ISPs blame the whole affair on rogue employees.

PC World begs to differ:

"Ronnie Scelson, a self-described spammer who signed such a contract with PSInet, (says) that backbone providers are more than happy to do business with bulk e-mailers. 'I've signed up with the biggest 50 carriers two or three times', says Scelson ... The Louisiana-based spammer claims to send 84 million commercial e-mail messages a day over his three 45-megabit-per-second DS3 circuits. 'If you were getting \$40,000 a month for each circuit', Scelson asks, 'would you want to shut me down?'"

The line between permission-based or "opt-in" e-mail marketing and spam is getting thinner by the day. Some list resellers guarantee the consensual nature of their wares. According to the Direct Marketing Association's guidelines, quoted by PC World, not responding to an unsolicited e-mail amounts to "opting-in" - a marketing strategy known as "opting out". Most experts, though, strongly urge spam victims not to respond to spammers, lest their e-mail address is confirmed.

But spam is crossing technological boundaries. Japan has just legislated against wireless SMS spam targeted at hapless mobile phone users. Many states in the USA as well as the European parliament have followed suit. Ideas regarding a "do not spam" list akin to the "do not call" list in telemarketing have been floated. Mobile phone users will place their phone numbers on the list to avoid receiving UCE (spam). Email subscribers enjoy the benefits of a similar list under the CAN-Spam Act of 2003.

Expensive and slow connections make mobile phone spam and spim (instant messaging spam) particularly resented. Still, according to Britain's Mobile Channel, a mobile advertising company quoted by "The Economist", SMS advertising - a novelty - attracts a 10-20 percent response rate - compared to direct mail's 1-3 percent.

Net identification systems - like Microsoft's Passport and the one proposed by Liberty Alliance - will make it even easier for marketers to target prospects.

The reaction to spam can be described only as mass hysteria. Reporting someone as a spammer - even when he is not - has become a favorite pastime of vengeful, self-appointed, vigilante "cyber-cops". Perfectly legitimate, opt-in, email marketing businesses and discussion forums often find themselves in one or more black lists - their reputation and business ruined.

In January 2002, CMGI-owned Yesmail was awarded a temporary restraining order against MAPS - Mail Abuse Prevention System - forbidding it to place the reputable e-mail marketer on its Real-time Blackhole list. The case was settled out of court.

Harris Interactive, a large online opinion polling company, sued not only MAPS, but ISPs who blocked its email messages when it found itself included in MAPS' Blackhole. Their CEO accused one of their competitors for the allegations that led to Harris' inclusion in the list.

Coupled with other pernicious phenomena - such as viruses, Trojans, and spyware - the very foundation of the Internet as a fun, relatively safe, mode of communication and data acquisition is at stake.

Spammers, it emerges, have their own organizations. NOIC - the National Organization of Internet Commerce threatened to post to its Web site the e-mail addresses of millions of AOL members. AOL has aggressive anti-spamming policies. "AOL is blocking bulk email because it wants the advertising revenues for itself (by selling pop-up ads)" the president of NOIC, Damien Melle, complained to CNET.

Spam is a classic "free rider" problem. For any given individual, the cost of blocking a spammer far outweighs the benefits. It is cheaper and easier to hit the "delete" key. Individuals, therefore, prefer to let others do the job and enjoy the outcome - the public good of a spam-free Internet. They cannot be left out of the benefits of such an aftermath - public goods are, by definition, "non-excludable". Nor is a [public good](#) diminished by a growing number of "non-rival" users.

Such a situation resembles a market failure and requires government intervention through legislation and enforcement. The FTC - the US Federal Trade Commission - has taken legal action against more than 100 spammers for promoting scams and fraudulent goods and services.

"Project Mailbox" is an anti-spam collaboration between American law enforcement agencies and the private sector. Non government organizations have entered the fray, as have lobbying groups, such as CAUCE - the Coalition Against Unsolicited Commercial E-mail.

But, a few recent anti-spam and anti-spyware Acts notwithstanding, Congress is curiously reluctant to enact stringent laws against spam. Reasons cited are free speech, limits on state powers to regulate commerce, avoiding unfair restrictions on trade, and the interests of small business. The courts equivocate as well. In some cases - e.g., Missouri vs. American Blast Fax - US courts found "that the provision prohibiting the sending of unsolicited advertisements is unconstitutional".

According to Spamlaws.com, the 107th Congress, for instance, discussed these laws but never enacted them:

Unsolicited Commercial Electronic Mail Act of 2001 (H.R. 95), Wireless Telephone Spam Protection Act (H.R. 113), Anti-Spamming Act of 2001 (H.R. 718), Anti-Spamming Act of 2001 (H.R. 1017), Who Is E-Mailing Our Kids Act (H.R. 1846), Protect Children From E-Mail Smut Act of 2001 (H.R. 2472), Netizens Protection Act of 2001 (H.R. 3146), "CAN SPAM" Act of 2001 (S. 630).

Anti-spam laws fared no better in the 106th Congress. Some of the states have picked up the slack. Arkansas, California, Colorado, Connecticut, Delaware, Idaho, Illinois, Iowa, Kansas, Louisiana, Maryland, Minnesota, Missouri, Nevada, North Carolina, Oklahoma, Pennsylvania, Rhode Island, South Dakota, Tennessee, Utah, Virginia, Washington, West Virginia, and Wisconsin.

The situation is no better across the pond. The European parliament decided in 2001 to allow each member country to enact its own spam laws, thus avoiding a continent-wide directive and directly confronting the communications ministers of the union. Paradoxically, it also decided, in March 2002, to restrict SMS spam. Confusion clearly reigns. Finally, in May 2002, it adopted strong anti-spam provisions as part of a Directive on Data Protection.

Responding to this unfavorable legal environment, spam is relocating to developing countries, such as Malaysia, Nepal, and Nigeria. In a May 2005 report, the OECD (Organization for Economic Cooperation and Development) warned that these countries lack the technical know-how and financial resources (let alone the will) to combat spam. Their users, anyhow deprived of bandwidth, endure, as a result, a less reliable service and an intermittent access to the Internet;

"Spam is a much more serious issue in developing countries...as it is a heavy drain on resources that are scarcer and costlier in developing countries than elsewhere" - writes the report's author, Suresh Ramasubramanian, an OECD advisor and postmaster for Outblaze.com.

ISPs, spam monitoring services, and governments in the rich industrialized world react by placing entire countries - such as Macedonia and Costa Rica - on black lists and, thus denying access to their users en bloc.

International collaboration against the looming destruction of the Internet by crime organizations is budding. The FTC had just announced that it will work with its counterparts abroad to cut zombie computers off the network. A welcome step - but about three years late. Spammers the world over are still six steps ahead and are having the upper hand.

Nigerian Scams - Begging Your Trust in Africa

Also published by United Press International (UPI)

The syntax is tortured, the grammar mutilated, but the message - sent by snail mail, telex, fax, or e-mail - is coherent: an African bigwig or his heirs wish to transfer funds amassed in years of graft and venality to a safe bank account in the West. They seek the recipient's permission to make use of his or her inconspicuous services for a percentage of the loot - usually many millions of dollars. A fee is required to expedite the proceedings, or to pay taxes, or to bribe officials - they plausibly explain. A recent (2005) variant involves payment with expertly forged postal money orders for goods exported to a transit address.

It is a scam two decades old - and it still works. In September 2002, a bookkeeper for a Berkley, Michigan law firm embezzled \$2.1 million and wired it to various bank accounts in South Africa and Taiwan. Other victims were kidnapped for ransom as they traveled abroad to collect their "share". Some never made it back. Every year, there are 5 such murders as well as 8-10 snatchings of American citizens alone. The usual ransom demanded is half a million to a million dollars.

The scam is so widespread that the Nigerians saw fit to explicitly ban it in article 419 of their penal code. The Nigerian President, Olusegun Obasanjo castigated the fraudsters for inflicting "incalculable damage to Nigerian businesses" and for "placing the entire country under suspicion".

"Wired" quotes statistics presented at the International Conference on Advance Fee (419) Frauds in New York on Sept. 17, 2002:

"Roughly 1 percent of the millions of people who receive 419 e-mails and faxes are successfully scammed. Annual losses to the scam in the United States total more than \$100 million, and law enforcement officials believe global losses may total over \$1.5 billion."

According to the "IFCC 2001 Internet Fraud Report", published by the FBI and the National White Collar Crime Center, Nigerian letter fraud cases amount to 15.5 percent of all grievances. The Internet Fraud Complaint Center (renamed the Internet Crime Complaint Center, or IC3) refers such rip-offs to the US Secret Service. While the median loss in all manner of Internet fraud was \$435 - in the Nigerian scam it was a staggering \$5575. But only one in ten successful crimes is reported, says the FBI's report.

The IFCC provides this advisory to potential targets:

- Be skeptical of individuals representing themselves as Nigerian or other foreign government officials asking for your help in placing large sums of money in overseas bank accounts.
- Do not believe the promise of large sums of money for your cooperation.
- Do not give out any personal information regarding your savings, checking, credit, or other financial accounts.
- If you are solicited, do not respond and quickly notify the appropriate authorities.

The "419 Coalition" is more succinct and a lot more pessimistic:

1. "NEVER pay anything up front for ANY reason.
2. NEVER extend credit for ANY reason.
3. NEVER do ANYTHING until their check clears.
4. NEVER expect ANY help from the Nigerian Government.
5. NEVER rely on YOUR Government to bail you out."

The State Department's Bureau of International Narcotics and Law Enforcement Affairs published a brochure titled "Nigerian Advance Fee Fraud". It describes the history of this particular type of swindle:

"AFF criminals include university-educated professionals who are the best in the world for nonviolent spectacular crimes. AFF letters first surfaced in the mid-1980s around the time of the collapse of world oil prices, which is Nigeria's main foreign exchange earner. Some Nigerians turned to crime in order to survive. Fraudulent schemes such as AFF succeeded in Nigeria, because Nigerian criminals took advantage of the fact that Nigerians speak English, the international language of business, and the country's vast oil wealth and natural gas reserves - ranked 13th in the world - offer lucrative business opportunities that attract many foreign companies and individuals."

According to London's Metropolitan Police Company Fraud Department, potential targets in the UK and the USA alone receive c. 1500 solicitations a week. The US Secret Service Financial Crime Division takes in 100 calls a day from Americans approach by the con-men. It now acknowledges that "Nigerian organized crime rings running fraud schemes through the mail and phone lines are now so large, they represent a serious financial threat to the country".

Sometimes even the stamps affixed to such letters are forged. Nigerian postal workers are known to be in cahoots with the fraudsters. Names and addresses are obtained from "trade journals, business directories, magazine and newspaper advertisements, chambers of commerce, and the Internet".

Victims are either too intimidated to complain or else reluctant to admit their collusion in money laundering and fraud. Others try in vain to recoup their losses by ploughing more money into the scheme.

Contrary to popular image, the scammers are often violent and involved in other criminal pursuits, such as drug trafficking, According to Nigeria's Drug Law Enforcement Agency. The blight has spread to other countries. Letters from Sierra Leone, Ghana, Congo, Liberia, Togo, Ivory Coast, Benin, Burkina Faso, South Africa, Taiwan, or even Canada, the United Kingdom, Oman, and Vietnam are not uncommon.

The dodges fall into a few categories.

Over-invoiced contract scams involve the ostensible transfer of amounts obtained through inflated invoices to the bank account of an unrelated foreign firm. Contract fraud or "trade default" is simply a bogus order accompanied by a fraudulent bank draft (or fake postal or other money order) for the products of an export company accompanied by demand for "samples" and various transaction "fees and charges".

Some of the rackets are plain outlandish. In the "wash-wash" confidence trick people have been known to pay up to \$200,000 for a special solution to remove stains from millions in defaced dollar notes. Others "bought" heavily "discounted" crude oil stored in "secret" locations - or real estate in rezoned locales. "Clearing houses" or "venture capital organizations" claiming to act on behalf of the Central Bank of Nigeria launder the proceeds of the scams.

In another twist, charities, academic institutions, nonprofit organizations, and religious groups are asked to pay the inheritances tax on a "donation". Some "dignitaries" and their relatives may seek to flee the country and ask the victims to advance the bribe money in return for a generous cut of the wealth they have stashed abroad.

"Bankers" may find inactive accounts with millions of dollars - often in lottery winnings - waiting to be transferred to a safe off-shore haven. Bogus jobs with inflated wages are another ostensible way to defraud state-owned companies - as is the sale of the target's used vehicle to them for an extravagant price. There seems to be no end to criminal ingenuity.

Lately, the correspondence purports to be coming from - often white - disinterested professional third parties. Accountants, lawyers, directors, trustees, security personnel, or bankers pretend to be acting as fiduciaries for the real dignitary in need of help. Less gullible victims are subjected to plain old extortion with verbal intimidation and stalking.

The more heightened public awareness grows with over-exposure and the tighter the net of international cooperation against the scam, the wilder the stories it spawns. Letters have surfaced recently signed by dying refugees, tsunami victims, survivors of the September 11 attacks, and serendipitous US commandos on mission in Afghanistan.

Governments throughout the world have geared up to protect their businessmen. The US Department of Commerce, for instance, publishes the "World Traders data Report", compiled by US embassy in Nigeria. It "provides the following types of information: types of organizations, year established, principal owners, size, product line, and financial and trade references".

Unilateral US activity, inefficacious collaboration with the Nigerian government some of whose officials are rumored to be in on the deals, multilateral efforts in the framework of the OECD and the Interpol, education and information campaigns - nothing seems to be working.

The treatment of 419 fraudsters in Nigeria is so lenient that, according to the "Nigeria Tribune", the United States threatened the country with sanctions if it does not considerably improve its record on financial crime by November 2002. Both the US Treasury's Financial Crime Enforcement Network (FINCEN) and the OECD's Financial Action Task Force (FATF) had characterized the country as "one of the worst perpetrators of financial crimes in the world". The Nigerian central bank promises to get to grips with this debilitating problem.

Nigerian themselves - though often victims of the scams - take the phenomenon in stride. The Nigerian "Daily Champion", proffered this insightful apologia on behalf of the ruthless and merciless 419 gangs. It is worth quoting at length:

"To eradicate the 419 scourge, leaders at all levels should work assiduously to create employment opportunities and people perception of the leaders as role models. The country's very high unemployment figure has made nonsense of the so-called democracy dividends. Great majority of Nigerian youthful school leaver's including University graduates, are without visible means of livelihood... The fact remains that most of these teeming youths cannot just watch our so-called leaders siphon their God-given wealthy. So, they resorted to alternative fraudulent means of livelihood called 419, at least to be seen as have arrived... Some of these 419ers are in the National Assembly and the State Houses of Assembly while some surround the President and governors across the country."

Some swindlers seek to glorify their criminal activities with a political and historical context. The Web site of the "419 Coalition" contains letters casting the scam as a form of forced reparation for slavery, akin to the compensation paid by Germany to survivors of the holocaust. The confidence tricksters boast of defrauding the "white civilization" and unmasking the falsity of its claims for superiority. But a few delusional individuals aside, this is nothing but a smokescreen.

Greed outweighs fear and avarice enmeshes people in clearly criminal enterprises. The "victims" of advance fee scams are rarely incognizant of their alleged role. They knowingly and intentionally collude with self-professed criminals to fleece governments and institutions. This is one of the rare crimes where prey and perpetrator may well deserve each other.

Crashing and Cashing, Pumping and Dumping: Stock Manipulation in the USA

Two weeks ago, America's Securities and Exchange Commission (SEC), the Financial Industry Regulatory Authority and New York Stock Exchange Regulation announced that they will investigate the spreading of unsubstantiated or patently false rumors in order to manipulate the prices of stocks. Networks of broker-dealers, hedge funds and investment

advisers allegedly participate in these activities on behalf of short-sellers (clients who make a profit when the prices of stocks collapse).

Other shady operators act through the Internet: they target "penny stocks" (illiquid shares with low market capitalization). They spam millions of e-mail inboxes with "good news", "exclusive tips", and "privileged information". When gullible victims buy the shares, they sell at a huge profit. These operations are known as "pump and dump".

Still, it is not easy to prove that a broker or an investment advisor knew that the information he was parlaying was false. Gossip spreads through ephemeral means, such as texting (SMS), IM (Instant Messaging), and anonymous or encrypted re-mailing. Moreover, the unhampered flow of information is at the foundation of both free speech and the efficient operation of financial markets.

Still, maliciously planted false data can undermine trust among market players, dry out liquidity, and ruin perfectly healthy firms. Banks and brokerage houses are especially vulnerable as their main asset is their reputation.

Some people have already been brought to justice. On July 14, 2008, the New-York Times reported:

"In April, the S.E.C. settled a securities-fraud and market-manipulation charge against Paul S. Berliner, a trader formerly with the Schottenfeld Group. The S.E.C. charged he had spread a false rumor about the price of the Blackstone Group's potential acquisition of Alliance Data Systems, and profited from short-selling Alliance's stock."

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Don't Blink!

Interview with Jeff Harrow

Also published by United Press International (UPI)

Jeff Harrow is the author and editor of the Web-based multimedia "Harrow Technology Report" journal and Webcast, available at www.TheHarrowGroup.com. He also co-authored the book "The Disappearance of Telecommunications". For more than seventeen years, beginning with "The Rapidly Changing Face of Computing," the Web's first and longest-running weekly multimedia technology journal, he has shared with people across the globe his fascination with technology and his sense of wonder at the innovations and trends of contemporary computing and the growing number of technologies that drive them.

Jeff Harrow has been the senior technologist for the Corporate Strategy Groups of both Compaq and Digital Equipment Corporation. He invented and implemented the first iconic network management prototype for DECnet networks.

He now works with businesses and industry groups to help them better understand the strategic implications of our contemporary and future computing environments.

Q. You introduce people to innovation and technological trends - but do you have any hands on experience as an innovator or a trendsetter?

A. I have many patents issued and on file in the areas of network management and user interface technology, I am commercial pilot, and technology is both my vocation and my passion. I bring these and other technological interests together to help people "look beyond the comfortable and obvious," so that they don't become road-kill by the side of the Information Highway.

Q. If you had to identify the five technologies with the maximal economic impact in the next two decades - what would they be?

A) The continuation and expansion of "Moore's Law" as it relates to our ability to create ever-smaller, faster, more-capable semiconductors and nano-scale "machines." The exponential growth of our capabilities in these areas will drive many of the other high-impact technologies mentioned below.

B) "Nanotechnology." As we increasingly learn to "build things 'upwards'" from individual molecules and atoms, rather than by "etching things down" as we do today when building our semiconductors, we're learning how to create things on the same scale and in the same manner as Nature has done for billions of years. As we perfect these techniques, entire industries, such as pharmaceuticals and even manufacturing will be radically changed.

C) "Bandwidth." For most of the hundred years of the age of electronics, individuals and businesses were able to 'reach out and touch' each other at a distance via the telephone, which

extended their voice. This dramatically changed how business was conducted, but was limited to those areas where voice could make a difference.

Similarly, now that most business operations and knowledge work are conducted in the digital domain via computers, and because we now have a global data communications network (the Internet) which does not restrict the type of data shared (voice, documents, real-time collaboration, videoconferencing, video-on-demand, print-on-demand, and even the creation of physical 3D prototype elements at a distance from insubstantial CAD files), business is changing yet again.

Knowledge workers can now work where they wish to, rather than be subject to the old restrictions of physical proximity, which can change the concept of cities and suburbs. Virtual teams can spring up and dissipate as needed without regard to geography or time zones. Indeed, as bandwidth continues to increase in availability and plummet in cost, entire industries, such as the "call center," are finding a global marketplace that could not have existed before.

Example: U.S. firms whose "800 numbers" are actually answered by American-sounding representatives who are working in India, and U.S. firms who are outsourcing "back office" operations to other countries with well-educated but lower-paid workforces.

Individuals can now afford Internet data connections that just a few years ago were the expensive province of large corporations (e.g., cable modem and DSL service). As these technologies improve, and as fiber is eventually extended "to the curb," many industries, some not yet invented, will find ways to profitably consume this new resource. We always find innovative ways to consume available resources.

D) "Combinational Sciences." More than any one or two individual technologies, I believe that the combination and resulting synergy of multiple technologies will have the most dramatic and far-reaching effects on our societies. For example, completing the human genome could not have taken place at all, much less years earlier than expected, without Moore's Law of computing.

And now the second stage of what will be a biological and medical revolution, "Proteomics", will be further driven by advances in computing. But in a synergistic way, computing may actually be driven by advances in biology which are making it possible, as scientists learn more about DNA and other organic molecules, to use them as the basis for certain types of computing!

Other examples of "combination sciences" that synergistically build on one another include:

- Materials science and computing. For instance: carbon nanotubes, in some ways the results of our abilities to work at the molecular level due to computing research, are far stronger than steel and may lead to new materials with exceptional qualities.

- Medicine, biology, and materials science. For example, the use of transgenic goats to produce specialized "building materials" such as large quantities of spider silk in their milk, as is being done by Nexia Biotechnologies.

- "Molecular Manufacturing." As offshoots of much of the above research, scientists are learning how to coerce molecules to automatically form the structures they need, rather than by having to painstakingly push or prod these tiny building blocks into the correct places.

The bottom line is that the real power of the next decades will be in the combination and synergy of previously separate fields. And this will impact not only industries, but the education process as well, as it becomes apparent that people with broad, "cross-field" knowledge will be the ones to recognize the new synergistic opportunities and benefit from them.

2. Users and the public at large are apprehensive about the all-pervasiveness of modern applications of science and engineering. People cite security and privacy concerns with regards to the Internet, for example. Do you believe a Luddite backlash is in the cards?

There are some very good reasons to be concerned and cautious about the implementation of the various technologies that are changing our world. Just as with most technologies in the past (arrows, gunpowder, dynamite, the telephone, and more), they can be used for both good and ill. And with today's pell-mell rush to make all of our business and personal data "digital," it's no wonder that issues related to privacy, security and more weigh on peoples' minds.

As in the past, some people will choose to wall themselves off from these technological changes (invasions?). Yet, in the context of our evolving societies, the benefits of these technologies, as with electricity and the telephone before them, will outweigh the dangers for many if not most people.

That said, however, it behooves us all to watch and participate in how these technologies are applied, and in what laws and safeguards are put in place, so that the end result is, quite literally, something that we can live with.

3. Previous predictions of convergence have flunked. The fabled Home Entertainment Center has yet to materialize, for instance. What types of convergence do you deem practical and what will be their impact - social and economic?

Much of the most important and far-reaching "convergences" will be at the scientific and industrial levels, although these will trickle down to consumers and businesses in a myriad ways. "The fabled Home Entertainment Center" has indeed not yet arrived, but not because it's technologically impossible - more because consumers have not been shown compelling reasons and results. However, we have seen a vast amount of this "convergence" in different ways. Consider the extent of entertainment now provided through PCs and video game consoles, or the relatively new class of PDA+cell phone, or the pocket MP3 player, or the in-car DVD ...

4. Dot.coms have bombed. Now nano-technology is touted as the basis for a "New Economy". Are we in for the bursting of yet another bubble?

Unrealistic expectations are rarely met over the long term. Many people felt that the dot.com era was unrealistic, yet the allure of the magically rising stock prices fueled the eventual conflagration. The same could happen with nanotechnology, but perhaps we have learned to combine our excitement of "the next big thing" with reasonable and rational expectations and business practices. The "science" will come at its own pace -- how we finance that, and profit from it, could well benefit from the dot.bomb lessons of the past. Just as with science, there's no pot of gold at the end of the economic rainbow.

5. Moore's Law and Metcalf's Law delineate an exponential growth in memory, processing speed, storage, and other computer capacities. Where is it all going? What is the end point? Why do we need so much computing power on our desktops? What drives what - technology the cycle-consuming applications or vice versa?

There are always "bottlenecks." Taking computers as an example, at any point in time we may have been stymied by not having enough processing power, or memory, or disk space, or bandwidth, or even ideas of how to consume all of the resources that happened to exist at a given moment.

But because each of these (and many more) technologies advance along their individual curves, the mix of our overall technological capabilities keeps expanding, and this continues to open incredible new opportunities for those who are willing to color outside the lines.

For example, at a particular moment in time, a college student wrote a program and distributed it over the Internet, and changed the economics and business model for the entire music distribution industry (Napster). This could not have happened without the computing power, storage, and bandwidth that happened to come together at that time.

Similarly, as these basic computing and communications capabilities have continued to grow in capacity, other brilliant minds used the new capabilities to create the DivX compression algorithm (which allows "good enough" movies to be stored and distributed online) and file-format-independent peer-to-peer networks (such as Kazaa), which are beginning to change the video industry in the same manner!

The point is that in a circular fashion, technology drives innovation, while innovation also enables and drives technology, but it's all sparked and fueled by the innovative minds of individuals. Technology remains open-ended. For example, as we have approached certain "limits" in how we build semiconductors, or in how we store magnetic information, we have ALWAYS found ways "through" or "around" them. And I see no indication that this will slow down.

6. The battle rages between commercial interests and champions of the ethos of free content and open source software. How do you envisage the field ten years from now?

The free content of the Internet, financed in part by the dot.com era of easy money, was probably necessary to bootstrap the early Internet into demonstrating its new potential and value to people and businesses. But while it's tempting to subscribe to slogans such as "information wants to be free," the longer-term reality is that if individuals and businesses are not compensated for the information that they present, there will eventually be little information available.

This is not to say that advertising or traditional "subscriptions," or even the still struggling system of "micropayments" for each tidbit, are the roads to success. Innovation will also play a dramatic role as numerous techniques are tried and refined. But overall, people are willing to pay for value, and the next decade will find a continuing series of experiments in how the information marketplace and its consumers come together.

7. Adapting to rapid technological change is disorientating. Toffler called it a "future shock". Can you compare people's reactions to new technologies today - to their reactions, say, 20 years ago?

It's all a matter of 'rate of change.' At the beginning of the industrial revolution, the parents in the farms could not understand the changes that their children brought home with them from the cities, where the pace of innovation far exceeded the generations-long rural change process.

Twenty years ago, at the time of the birth of the PC, most people in industrialized nations accommodated dramatically more change each year than early industrial-age farmer would have seen in his or her lifetime. Yet both probably felt about the same amount of "future shock," because it's relative. The "twenty years ago" person had become accustomed to that year's results of the exponential growth of technology, and so was "prepared" for that then-current rate of change.

Similarly, today, school children happily take the most sophisticated of computing technologies in-stride, while many of their parents still flounder at setting the clock on the VCR - because the kids simply know no other rate of change. It's in the perception.

That said, given that so many technological changes are exponential in nature, it's increasingly difficult for people to be comfortable with the amount of change that will occur in their own lifetime. Today's schoolchildren will see more technological change in the next twenty years than I have seen in my lifetime to date; it will be fascinating to see how they (and I) cope.

8. What's your take on e-books? Why didn't they take off? Is there a more general lesson here?

The E-books of the past few years have been an imperfect solution looking for a problem.

There's certainly value in the concept of an E-book, a self-contained electronic "document" whose content can change at a whim either from internal information or from the world at large. Travelers could carry an entire library with them and never run out of reading material. Textbooks could reside in the E-book and save the backs of backpack-touting students. Industrial manuals could always be on-hand (in-hand!) and up to date. And more.

Indeed, for certain categories, such as for industrial manuals, the E-book has already proven valuable. But when it comes to the general case, consumers found that the restrictions of the first E-books outweighed their benefits. They were expensive. They were fragile. Their battery life was very limited. They were not as comfortable to hold or to read from as a traditional book. There were several incompatible standards and formats, meaning that content was available only from limited outlets, and only a fraction of the content that was available in traditional books was available in E-book form. Very restrictive.

The lesson is that (most) people won't usually buy technology for technology's sake. On the other hand, use a technology to significantly improve the right elements of a product or service, or its price, and stand back.

9. What are the engines of innovation? what drives people to innovate, to invent, to think outside the box and to lead others to adopt their vision?

"People" are the engines of innovation. The desire to look over the horizon, to connect the dots in new ways, and to color outside the lines is what drives human progress in its myriad dimensions. People want to do things more easily, become more profitable, or simply 'do something new,' and these are the seeds of innovation.

Today, the building blocks that people innovate with can be far more complex than those in the past. You can create a more interesting innovation out of an integrated circuit that contains 42-million transistors today - a Pentium 4 - than you could out of a few single discrete transistors 30 years ago.

Or today's building blocks can be far more basic (such as using Atomic Force Microscopes to push individual atoms around into just the right structure.) These differences in scale determine, in part, why today's innovations seem more dramatic.

But at its heart, innovation is a human concept, and it takes good ideas and persuasion to convince people to adopt the resulting changes. Machines don't (yet) innovate. And they may never do so, unless they develop that spark of self-awareness that (so far) uniquely characterizes living things.

Even if we get to the point where we convince our computers to write their own programs, at this point it does not seem that they will go beyond the goals that we set for them. They may be able to try superhuman numbers of combinations before arriving at just the right one to address a defined problem, but they won't go beyond the problem. Not the machines we know today, at any rate.

On the other hand, some people, such as National Medal of Technology recipient Ray Kurzweil, believe that the exponential increase in the capabilities of our machines - which some estimate will reach the complexity of the human brain within a few decades - may result in those machines becoming self-aware.

Don't Blink!

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The Case of the Compressed Image

Also published by United Press International (UPI)

Forgent Networks from Texas wants to collect a royalty every time someone compresses an image using the JPEG algorithm. It urges third parties to negotiate with it separate licensing agreements. It bases its claim on a 17 year old patent it acquired in 1997 when VTel, from which Forgent was spun-off, purchased the San-Jose based Compression Labs.

The patent pertains to a crucial element in the popular compression method. The JPEG committee of ISO - the International Standards Organization - threatens to withdraw the standard altogether. This would impact thousands of software and hardware products.

This is only the latest in a series of spats. Unisys has spent the better part of the last 15 years trying to enforce a patent it owns for a compression technique used in two other popular imaging standards, GIF and TIFF. BT Group sued Prodigy, a unit of SBC Communications, in a US federal court, for infringement of its patent of the hypertext link, or hyperlink - a ubiquitous and critical element of the Web. Dell Computer has agreed with the FTC to refrain from enforcing a graphics patent having failed to disclose it to the standards committee in its deliberations of the VL-bus graphics standard.

"Wired" reported yesterday that the Munich Upper Court declared "deep linking" - posting links to specific pages within a Web site - in violation the European Union "Database Directive". The directive copyrights the "selection and arrangement" of a database - even if the content itself is not owned by the database creator. It explicitly prohibits hyperlinking to the database contents as "unfair extraction". If upheld, this would cripple most search engines. Similar rulings - based on national laws - were handed down in other countries, the latest being Denmark.

Amazon sued Barnes and Noble - and has since settled out of court in March - for emulating its patented "one click purchasing" business process. A Web browser command to purchase an item generates a "cookie" - a text file replete with the buyer's essential details which is then lodged in Amazon's server. This allows the transaction to be completed without a further confirmation step.

A clever trick, no doubt. But even Jeff Bezos, Amazon's legendary founder, expressed doubts regarding the wisdom of the US Patent Office in granting his company the patent. In an open letter to Amazon's customers, he called for a rethinking of the whole system of protection of intellectual property in the Internet age.

In a recently published discourse of innovation and property rights, titled "The Free-Market Innovation Machine", William Baumol of Princeton University claims that only capitalism guarantees growth through a steady flow of innovation. According to popular lore, capitalism makes sure that innovators are rewarded for their time and skills since property rights are enshrined in enforceable contracts.

Reality is different, as Baumol himself notes. Innovators tend to maximize their returns by sharing their technology and licensing it to more efficient and profitable manufacturers. This rational division of labor is hampered by the increasingly more stringent and expansive intellectual property laws that afflict many rich countries nowadays. These statutes tend to protect the interests of middlemen - manufacturers, distributors, marketers - rather than the claims of inventors and innovators.

Moreover, the very nature of "intellectual property" is in flux. Business processes and methods, plants, genetic material, strains of animals, minor changes to existing technologies - are all patentable. Trademarks and copyright now cover contents, brand names, and modes of expression and presentation. Nothing is safe from these encroaching juridical initiatives. Intellectual property rights have been transformed into a myriad pernicious monopolies which threaten to stifle innovation and competition.

Intellectual property - patents, content libraries, copyrighted material, trademarks, rights of all kinds - are sometimes the sole assets - and the only hope for survival - of cash-strapped and otherwise dysfunctional or bankrupt firms. Both managers and court-appointed receivers strive to monetize these properties and patent-portfolios by either selling them or enforcing the rights against infringing third parties.

Fighting a patent battle in court is prohibitively expensive and the outcome uncertain. Potential defendants succumb to extortionate demands rather than endure the Kafkaesque process. The costs are passed on to the consumer. Sony, for instance already paid Forgent an undisclosed amount in May. According to Forgent's 10-Q form, filed on June 17, 2002, yet another, unidentified "prestigious international" company, parted with \$15 million in April.

In commentaries written in 1999-2000 by Harvard law professor, Lawrence Lessig, for "The Industry Standard", he observed:

"There is growing skepticism among academics about whether such state-imposed monopolies help a rapidly evolving market such as the Internet. What is "novel," "nonobvious" or "useful" is hard enough to know in a relatively stable field. In a transforming market, it's nearly impossible..."

The very concept of intellectual property is being radically transformed by the onslaught of new technologies.

The myth of intellectual property postulates that entrepreneurs assume the risks associated with publishing books, recording records, and inventing only because - and where - the rights to intellectual property are well defined and enforced. In the absence of such rights, creative people are unlikely to make their works accessible to the public. Ultimately, it is the public which pays the price of piracy and other violations of intellectual property rights, goes the refrain.

This is untrue. In the USA only few authors actually live by their pen. Even fewer musicians, not to mention actors, eke out subsistence level income from their craft. Those who do can no longer be considered merely creative people. Madonna, Michael Jackson, Schwarzenegger and Grisham are businessmen at least as much as they are artists.

Intellectual property is a relatively new notion. In the near past, no one considered knowledge or the fruits of creativity (artwork, designs) as 'patentable', or as someone's 'property'. The artist was but a mere channel through which divine grace flowed. Texts, discoveries, inventions, works of art and music, designs - all belonged to the community and could be replicated freely. True, the chosen ones, the conduits, were revered. But they were rarely financially rewarded.

Well into the 19th century, artists and innovators were commissioned - and salaried - to produce their works of art and contrivances. The advent of the Industrial Revolution - and the imagery of the romantic lone inventor toiling on his brainchild in a basement or, later, a garage - gave rise to the patent. The more massive the markets became, the more sophisticated the sales and marketing techniques, the bigger the financial stakes - the larger loomed the issue of intellectual property.

Intellectual property rights are less about the intellect and more about property. In every single year of the last decade, the global turnover in intellectual property has outweighed the total industrial production of the world. These markets being global, the monopolists of intellectual products fight unfair competition globally. A pirate in Skopje is in direct rivalry with Bill Gates, depriving Microsoft of present and future revenue, challenging its monopolistic status as well as jeopardizing its competition-detering image.

The Open Source Movement weakens the classic model of property rights by presenting an alternative, viable, vibrant, model which does not involve over-pricing and anti-competitive predatory practices. The current model of property rights encourages monopolistic behavior, non-collaborative, exclusionary innovation (as opposed, for instance, to Linux), and litigiousness. The Open Source movement exposes the myths underlying current property rights philosophy and is thus subversive.

But the inane expansion of intellectual property rights may merely be a final spasm, threatened by the ubiquity of the Internet as they are. Free scholarly online publications nibble at the heels of their pricey and anticompetitive offline counterparts. Electronic publishing poses a threat - however distant - to print publishing. Napster-like peer to peer networks undermine the foundations of the music and film industries. Open source software is encroaching on the turf of proprietary applications. It is very easy and cheap to publish and distribute content on the Internet, the barriers to entry are virtually nil.

As processors grow speedier, storage larger, applications multi-featured, broadband access all-pervasive, and the Internet goes wireless - individuals are increasingly able to emulate much larger scale organizations successfully. A single person, working from home, with less than \$2000 worth of equipment - can publish a Webzine, author software, write music, shoot digital films, design products, or communicate with millions and his work will be indistinguishable from the offerings of the most endowed corporations and institutions.

Obviously, no individual can yet match the capital assets, the marketing clout, the market positioning, the global branding, the sales organization, and the distribution network of the likes of Sony, or Microsoft. In an age of information glut, it is still the marketing, the media campaign, the distribution, and the sales that determine the economic outcome.

This advantage, however, is also being eroded, albeit glacially.

The Internet is essentially a free marketing and - in the case of digital goods - distribution channel. It directly reaches 200 million people all over the world. Even with a minimum investment, the likelihood of being seen by surprisingly large numbers of consumers is high. Various business models are emerging or reasserting themselves - from ad sponsored content to packaged open source software.

Many creative people - artists, authors, innovators - are repelled by the commercialization of their intellect and muse. They seek - and find - alternatives to the behemoths of manufacturing, marketing and distribution that today control the bulk of intellectual property. Many of them go freelance. Indie music labels, independent cinema, print on demand publishing - are omens of things to come.

This inexorably leads to disintermediation - the removal of middlemen between producer or creator and consumer. The Internet enables niche marketing and restores the balance between the creative genius and the commercial exploiters of his product. This is a return to pre-industrial times when artisans ruled the economic scene.

Work mobility increases in this landscape of shifting allegiances, head hunting, remote collaboration, contract and agency work, and similar labour market trends. Intellectual property is likely to become as atomized as labor and to revert to its true owners - the inspired folks. They, in turn, will negotiate licensing deals directly with their end users and customers.

Capital, design, engineering, and labor intensive goods - computer chips, cruise missiles, and passenger cars - will still necessitate the coordination of a massive workforce in multiple locations. But even here, in the old industrial landscape, the intellectual contribution to the collective effort will likely be outsourced to roving freelancers who will maintain an ownership stake in their designs or inventions.

This intimate relationship between creative person and consumer is the way it has always been. We may yet look back on the 20th century and note with amazement the transient and aberrant phase of intermediation - the Sony's, Microsoft's, and Forgent's of this world.

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Information Technology at a Crossroads

Interview with Joe Santana and Jim Donovan

Also published by United Press International (UPI)

In the wake of the brutal burst of the dotcom bubble, the corporate role of information technology and its purveyors has been at the heart of a heated debate. "Manage IT" is a just-published guide for IT managers, authored by Joe Santana and Jim Donovan.

Q. How did you come to write the book and why now? This isn't exactly the heyday of IT!

Joe: I've been in the IT profession for a little over 21 years. During this time I've seen a huge number of stellar IT individual contributors promoted into IT management roles where they began a steady descent in performance and confidence that brought pain to themselves, their teams, and their company. When I looked around for books that addressed these IT management challenges, I found that none of them dealt with the possibility that the role might be the wrong one for the individual (e.g., not their talent).

I think that it is important to make sure that the individual has the proper talent, desire and willingness to be an IT manager in a specific role before we leap to training and other development interventions. Also, many of the books dedicated to IT management seem to focus on "project-management" skills or "Tayloristic" productivity measurement approaches. Project management and reading metrics are important, but are not the only skills needed to be an effective manager.

One of my personal motivations for engaging in this project with Jim was to provide IT professionals as well as Human Resource and Performance Consultants working with IT professionals with a tool that would do two things. First, enable the IT professional considering a role in management to determine if this is the right career move and, if it is, to provide them with a basic foundation of key IT management skills.

Jim: My background for the past 20 or so years has been in human development and potential. I've authored three quite successful self-help books, delivered countless seminars, and worked with individuals and groups to help them identify the blockages to their growth and create strategies to move toward their goals. My main contribution to this book is in helping people identify their personal goals and values and applying them to their careers.

If a person is working out of alignment with his high driving values, no amount of promotion or money will satisfy him or her. Such people are continually unhappy, unfulfilled and less than stellar performers. In "Manage IT" we have provided a series of exercises to assist people to identify their own goals and values and then determine if they are in alignment with the specific management position being considered. We've also provided the IT manager with coaching tools and strategies that they can use to elicit peak performance and results from their teams.

Q. Why is there a gap between corporate management and IT management? What went wrong, what are the historical roots of this misunderstanding?

Joe: IT people that grew up writing programs or keeping computers and networks running have typically not been exposed to company strategy and objectives early in their careers. On the other hand, their "cousins" in marketing, sales and operations - often promoted to become corporate - were either directly part of the "core business action" or at least close enough to witness it.

A lot of effort is going into closing this gap, by pioneering innovators such as Dr. Howard Rubin, executive vice president and board member of META Group. One model developed by Dr. Rubin, the IT Investment Portfolio Model, creates what he calls a "universal translator" between the language of IT and Corporate Management.

In essence, Dr. Rubin teaches IT executives to look at their IT dollars as part of an investment fund and to regard themselves as fund and portfolio managers whose goal is to allocate investments in a manner that supports their company's overall business strategy. The model is an excellent tool that enables the IT function to link and drive technology investment decisions to conform to the company's business strategy. We make extensive use of this model in one chapter of the book.

Q. A growing school of economists study the "Solow Paradox". It seems that the introduction of IT has little effect of workplace productivity. From your experience, in what ways does IT change the workplace and render it more productive?

Joe: Assessing the impact of IT on productivity solely on the basis of statistical models that focus on the aggregate of numerical indicators reminds me of a story I once heard about a weatherman who denied the presence of a storm he saw out his window because his instruments indicated clear skies with a light breeze.

The impact of technology in driving up individual and team productivity can be seen in any office today where hundreds of people share information in a presentation delivered online, without leaving their desks. Unfortunately unless these individual and team productivity improvements are focused on specific areas that enhance the aggregate economic productivity of the company, they do not show up on the statistical charts.

To have a greater impact on these macroeconomic statistics, IT investments need to be better aligned with company business goals. If a company is in a business where measured productivity is highly dependent on a well automated point of sale strategy, but it is investing a large portion of its IT dollars in providing computer maintenance services, the impact of IT dollar investments on the company's productivity will be low.

On the other hand, if said company were to shift its investments from the maintenance process to improving the point-of-sale automation tools, the impact on overall company productivity would be greater. Unfortunately, according to studies by the likes of the META Group, the number of organizations where IT is well-aligned with business objectives - and thus highly impacts productivity - is still relatively low.

Jim: One of the things we've done in "Manage IT" is to give the new or aspiring IT manager tools they can use to better understand their role within the corporation and how they fit into the "big picture." Seeing this "big picture" enables managers to focus-lead their teams performance in a manner that contributes to corporate productivity.

Q. Should IT functions be outsourced - or is an in-house department the best - and cost-effective - solution?

Joe: The best solution is a hybrid approach. Keep only those things that are key to the enterprise's competitive differentiation and outsource everything else.

For example, if a company's strategy is heavily predicated on its success as a provider of a unique mobile commerce solution, they should be looking at mobile commerce development as a strategic differentiator and should internally own this function. They may use consultants to work on various aspects as needed, but for the most part they would want to own the development of this process which is going to yield them a strategic advantage.

On the other hand, basic commodity services such as the help desk, maintenance & repair, and general network administration are not strategic differentiators. These functions are simply needed to run the business, just like telephone repair and paying insurance.

Furthermore, these functions can be performed more cheaply and more qualitatively by suppliers that leverage their investments across millions of transactions versus the thousands generated by even the largest enterprises. If an enterprise is seeking cost-savings or to free up funds and reallocate them to more strategic projects that will positively impact productivity, outsourcing all commodity, non-core services is the best solution.

While outsourcing may scare many IT people, the fact is that being an IT person in a company that outsources certain IT functions presents a number of great career opportunities for IT people. In our book we actually have a chapter where we outline how IT people can turn outsourcing into a positive.

Jim: One of our goals in the book is to help new managers become more innovative in their approach, so that instead of standing in the way of strategic corporate changes they learn how to harness these and create win-win situations.

Q. IT personnel are widely perceived to be highly mobile, forever head-hunted, types with little corporate loyalty. Is this true? Should firms invest in training such cadre?

Joe: I don't think companies can even attract good IT people if they cease to invest in training, so that's not an option. The issue is not lack of loyalty of IT professionals as much as lack of career opportunities offered by enterprises-employers in many IT professional roles.

Companies will have to develop opportunities for growth in areas that are key to their business strategy. IT positions in these areas should have a growth path. Companies generally do not have a career path for non-key areas. For example: unless the company is in the computer maintenance field, where a repair technician can move up the ladder and become say a manager and from there a director of repair services, a computer repair technician would not generally have much of a career path.

IT people who have positions in companies where opportunities for personal growth are limited are more receptive to headhunters and/or seeking the next career opportunity elsewhere. But the same could be said of any highly skilled professional facing an artificial career ceiling.

The question is how can a company make sure that it is hiring and investing in IT professionals who stick around long enough for the company to reap some rewards? If a firm offers no career growth opportunity for a given position, then it should be outsourced and the company should avoid the headache and expense of hiring and investments that result in benefits that they never reap.

Jim: We devote an entire chapter to "getting to know your people." In it we offer several ways in which managers can learn best ways to motivate their people and keep them actively involved in the company's overall objectives. We offer suggestions for developing staff members, which in turn, reduce turnover. Companies which invest in training and coaching experience higher productivity and lower turnover than those who do not.

Q. Should IT managers also be IT experts - or are general management skills sufficient? Can you provide us with a profile of the "ideal" IT manager?

Joe: I don't think there is a single "ideal" IT Manager profile. "Ideal" really depends on what the specific manager manages (e.g., a software development team, a help desk, etcetera) and the role the company expects the manager to play. The best way is to:

- * Identify the outcomes expected from the role
- * Determine what the person needs to do to reach those outcomes
- * Determine the talent, desire and willingness profile of the person required to perform the duties required by the role

The Gallup studies reveal that highly effective managers are great organizers of people and resources. They remove obstacles and thus increase team productivity and they know how to recognize, make the best use of, and develop their people's talents.

IT managers need to have a mixture of IT and general management skills. That does not mean that the IT manager has to be an expert (although some employers may expect and want this), but rather that he needs to understand the "technical context" of the work performed by the team in order to provide them with the support and direction they expect.

As IT continues to become inter-woven into the fabric of every business, the decisions concerning the allocation of IT investments and the quality of IT management as well as the ability of IT management to secure and maintain strong alignment with the objectives of the enterprise are becoming even more critical to business success. Companies that fail to fine-tune this area will find themselves in an increasingly difficult competitive position relative to their better-aligned competitors.

Jim: Agreed. The future belongs to those companies which understand that their true asset is their human capital and which invest in their employees. Study after study have confirmed that every "smart" dollar invested in employees results in increased performance, higher morale, less turnover and absenteeism and an overall increase in the growth of the company. By integrating all aspects of the business, including IT, companies become well positioned for growth into the twenty first century.

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THE INTERNET, THE ECONOMY, AND THE DIGITAL DIVIDE

The Internet – A Medium or a Message?

The State of the Net An Interim Report about the Future of the Internet

Who are the participants who constitute the Internet?

- Users - connected to the net and interacting with it
- The communications lines and the communications equipment
- The intermediaries (e.g. the suppliers of on-line information or access providers).
- Hardware manufacturers
- Software authors and manufacturers (browsers, site development tools, specific applications, smart agents, search engines and others).
- The "Hitchhikers" (search engines, smart agents, Artificial Intelligence - AI - tools and more)
- Content producers and providers
- Suppliers of financial wherewithal (currently - corporate and institutional cash gradually being replaced by advertising money)

The fate of each of these components - separately and in solidarity - will determine the fate of the Internet.

The first phase of the Internet's history was dominated by computer wizards. Thus, any attempt at predicting its future dealt mainly with its hardware and software components.

Media experts, sociologists, psychologists, advertising and marketing executives were left out of the collective effort to determine the future face of the Internet.

As far as content is concerned, the Internet cannot be currently defined as a medium. It does not function as one - rather it is a very disordered library, mostly incorporating the writings of non-distinguished megalomaniacs. It is the ultimate [Narcissistic experience](#). The forceful entry of publishing houses and content aggregators is changing this dismal landscape, though.

Ever since the invention of television there hasn't been anything as begging to become a medium as the Internet.

Three analogies spring to mind when contemplating the Internet in its current state:

- A chaotic library
- A neural network or the latter day equivalent of previous networks (telegraph, telephony, railways)
- A new continent

These metaphors prove to be very useful (even business-wise). They permit us to define the commercial opportunities embedded in the Internet.

Yet, they fail to assist us in predicting its future in its transformation into a medium.

How does an invention become a medium? What happens to it when it does become one? What is the thin line separating the initial functioning of the invention from its transformation into a new medium? In other words: when can we tell that some technological advance gave birth to a new medium?

This work also deals with the image of the Internet once transformed into a medium.

The Internet has the most unusual attributes in the history of media.

It has no central structure or organization. It is hardware and software independent. It (almost) cannot be subjected to legislation or to regulation. Consider the example of downloading music from the internet - is it tantamount to an act of recording music (a violation of copyright laws)? This has been the crux of the legal battle between Diamond Multimedia (the manufacturers of the Rio MP3 device), MP3.com and Napster and the recording industry in America.

The Internet's data transfer channels are not linear - they are random. Most of its "broadcast" cannot be "received" at all. It allows for the narrowest of narrowcasting through the use of e-mail mailing lists, discussion groups, message boards, private radio stations, and chats. And this is but a small portion of an impressive list of oddities. These idiosyncrasies will also shape the nature of the Internet as a medium. Growing out of bizarre roots - it is bound to yield strange fruit as a medium.

So what business opportunities does the Internet represent?

I believe that they are to be found in two broad categories:

- Software and hardware related to the Internet's future as a medium
- Content creation, management and licencing

The Map of Terra Internetica

The Users

How many Internet users are there? How many of them have access to the Web (World Wide Web - WWW) and use it? There are no unequivocal statistics. Those who presume to give the answers (including the ISOC - the Internet SOCIety) - rely on very partial and biased resources. Others just bluff.

Yet, everyone seems to agree that there are, at least, 100 million active participants in North America (the Nielsen and Commerce-Net reports).

The future is, inevitably, even more vague than the present. Authoritative consultancy firms predict 66 million active users in 10 years time. IBM envisages 700 million users. MCI is more modest with 300 million. At the end of 1999 there were 130 million registered (though not necessarily active) users.

The Internet - an Elitist and Chauvinistic Medium

The average user of the Internet is young (30), with an academic background and high income. The percentage of the educated and the well-to-do among the users of the Web is three times as high as their proportion in the population. This is fast changing only because their children are joining them (6 million already had access to the Internet at the end of 1996 - and were joined by another 24 million by the end of the decade). This may change only due to presidential initiatives to bridge the "digital divide" (from Al Gore's in the USA to Mahatir Mohammed's in Malaysia), corporate largesse and institutional involvement (e.g., Open Society in Eastern Europe, Microsoft in the USA). These efforts will spread the benefits of this all-powerful tool among the less privileged. A bit less than 50% of all users are men but they are responsible for 60% of the activity in the net (as measured by traffic).

Women seem to limit themselves to electronic mail (e-mail) and to electronic shopping of goods and services, though this is changing fast. Men prefer information, either due to career requirements or because knowledge is power.

Most of the users are of the "experiencer" variety. They are leaders of social change and innovative. This breed inhabits universities, fashionable neighbourhoods and trendy vocations. This is why some wonder if the Internet is not just another fad, albeit an incredibly resilient and promising one.

Most users have home access to the Internet - yet, they still prefer to access it from work, at their employer's expense, though this preference is slight and being eroded. Most users are, therefore, exploitative in nature. Still, we must not forget that there are 37 million households of the self-employed and this possibly distorts the statistical picture somewhat.

The Internet - A Western Phenomenon

Not African, not Asian (with the exception of Israel and Japan), not Russian, nor a Third World phenomenon. It belongs squarely to the wealthy, sated world. It is the indulgence of those who have everything and whose greatest concern is their choice of nightly entertainment. Between 50-60% of all Internet users live in the USA, 5-10% in Canada. The Internet is catching on in Europe (mainly in Germany and in Scandinavia) and, in its mobile form (i-mode) in Japan. The Internet lost to the French Minitel because the latter provides more locally relevant content and because of high costs of communications and hardware.

Communications

Most computer owners still possess a 28,800 bps modem. This is much like driving a bicycle on a German Autobahn. The 56,600 bps is gradually replacing its slower predecessor (48% of computers with modems) - but even this is hardly sufficient. To begin to enjoy video and audio (especially the former) - data transfer rates need to be 50 times faster.

Half the households in the USA have at least 2 telephones and one of them is usually dedicated to data processing (faxes or fax-modems).

The ISDN could constitute the mid-term solution. This data transfer network is fairly speedy and covers 70% of the territory of the USA. It is growing by 100% annually and its sales topped 10 billion USD in 1995/6.

Unfortunately, it is quite clear that ISDN is not THE answer. It is too slow, too user-unfriendly, has a bad interface with other network types, it requires special hardware. There is no point in investing in temporary solutions when the right solution is staring the Internet in the face, though it is not implemented due to political circumstances.

A cable modem is 80 times speedier than the ISDN and 700 times faster than a 14,400 bps modem. However, it does have problems in accommodating a two-way data transfer. There is also need to connect the fibre optic infrastructure which characterizes cable companies to the old copper coaxial infrastructure which characterizes telephony. Cable users engage specially customized LANs (Ethernet) and the hardware is expensive (though equipment prices are forecast to collapse as demand increases). Cable companies simply did not invest in developing the technology. The law (prior to the 1996 Communications Act) forbade them to do anything that was not one way transfer of video via cables. Now, with the more liberal regulative environment, it is a mere question of time until the technology is found.

Actually, most consumers single out bad customer relations as their biggest problem with the cable companies - rather than technology.

Experiments conducted with cable modems led to a doubling of usage time (from an average of 24 to 47 hours per month per user) which was wholly attributable to the increased speed. This comes close to a cultural revolution in the allocation of leisure time. Numerically speaking: 7 million households in the USA are fitted with a two-way data transfer cable modems. This is a small number and it is anyone's guess if it constitutes a critical mass. Sales of such modems amount to 1.3 billion USD annually.

50% of all cable subscribers also have a PC at home. To me it seems that the merging of the two technologies is inevitable.

Other technological solutions - such as DSL, ADSL, and the more promising satellite broadband - are being developed and implemented, albeit slowly and inefficiently. Coverage is sporadic and frustrating waiting periods are measured in months.

Hardware and Software

Most Internet users (82%) work with the Windows operating system. About 11% own a Macintosh (much stronger graphically and more user-friendly). Only 7% continue to work on UNIX based systems (which, historically, fathered the Internet) - and this number is fast declining. A strong entrant is the free source LINUX operating system.

Virtually all users surf through a browsing software. A fast dwindling minority (26%) use Netscape's products (mainly Navigator and Communicator) and the majority use Microsoft's Explorer (more than 60% of the market). Browsers are now free products and can be downloaded from the Internet. As late as 1997, it was predicted by major Internet consultancy firms that browser sales will top \$4 billion by the year 2000. Such misguided predictions ignored the basic ethos of the Internet: free products, free content, free access.

Browsers are in for a great transformation. Most of them are likely to have 3-D, advanced audio, telephony / voice / video mail (v-mail), instant messaging, e-mail, and video conferencing capabilities integrated into the same browsing session. They will become self-customizing, intelligent, Internet interfaces. They will memorize the history of usage and user preferences and adapt themselves accordingly. They will allow content-specificity: unidentifiable smart agents will scour the Internet, make recommendations, compare prices, order goods and services and customize contents in line with self-adjusting user profiles.

Two important technological developments must be considered:

PDA's (Personal Digital Assistants) - the ultimate personal (and office) communicators, easy to carry, they provide Internet (access) Everywhere, independent of suppliers and providers and of physical infrastructure (in an aeroplane, in the field, in a cinema).

The second trend: wireless data transfer and wireless e-mail, whether through pagers, cellular phones, or through more sophisticated apparatus and hybrids such as smart phones. Geotech's products are an excellent example: e-mail, faxes, telephone calls and a connection to the Internet and to other, public and corporate, or proprietary, databases - all provided by the same gadget. This is the embodiment of the electronic, physically detached, office. Wearable computing should be considered a part of this "ubiquitous or pervasive computing" wave.

We have no way of gauging - or intelligently guessing - the part of the mobile Internet in the total future Internet market but it is likely to outweigh the "fixed" part. Wireless internet meshes well with the trend of pervasive computing and the intelligent home and office. Household gadgets such as microwave ovens, refrigerators and so on will connect to the internet via a wireless interface to cull data, download information, order goods and services, report their condition and perform basic maintenance functions. Location specific services (navigation, shopping recommendations, special discounts, deals and sales, emergency services) depend on the technological confluence between GPS (satellite-based geolocation technology) and wireless Internet.

Suppliers and Intermediaries

"Parasitic" intermediaries occupy each stage in the Internet's food chain.

Access to the Internet is still provided by "dumb pipes" - the Internet Service Providers (ISP)

Content is still the preserve of content suppliers and so on.

Some of these intermediaries are doomed to gradually fade or to suffer a substantial diminishing of their share of the market. Even "walled gardens" of content (such as AOL) are at risk.

By way of comparison, even today, ISPs have four times as many subscribers (worldwide) as AOL. Admittedly, this adversely affects the quality of the Internet - the infrastructure maintained by the phone companies is slow and often succumbs to bottlenecks. The unequivocal intention of the telephony giants to become major players in the Internet market should also be taken into account. The phone companies will, thus, play a dual role: they will provide access to their infrastructure to their competitors (sometimes, within a real or actual monopoly) - and they will compete with their clients. The same can be said about the cable companies. Controlling the last mile to the user's abode is the next big business of the Internet. Companies such as AOL are disadvantaged by these trends. It is imperative for AOL to obtain equal access to the cable company's backbone and infrastructure if it wants to survive. Hence its merger with Time Warner.

No wonder that many of the ISPs judge this intrusion on their turf by the phone and cable companies to constitute unfair competition. Yet, one should not forget that the barriers to entry are very low in the ISP market. It takes a minimal investment to become an ISP. 200 modems (which cost 200 USD each) are enough to satisfy the needs of 2000 average users who generate an income of 500,000 USD per annum to the ISP. Routers are equally as cheap nowadays. This is a nice return on the ISP's capital, undoubtedly.

The Hitchhikers

The Web houses the equivalent of 100 billion pages. Search Engine applications are used to locate specific information in this impressive, constantly proliferating library. They will be replaced, in the near future, by "Knowledge Structures" - gigantic encyclopaedias, whose text will contain references (hyperlinks) to other, relevant, sites. The far future will witness the emergence of the "Intelligent Archives" and the "Personal Newspapers" (read further for detailed explanations). Some software applications will summarize content, others will index and automatically reference and hyperlink texts (virtual bibliographies). An average user will have an on-going interest in 500 sites. Special software will be needed to manage address books ("bookmarks", "favourites") and contents ("Intelligent Addressbooks"). The phenomenon of search engines dedicated to search a number of search engines simultaneously will grow ("Hyper- or meta- engines"). Meta-engines will work in the background and download hyperlinks and advertising (the latter is essential to secure the financial interest of site developers and owners). Statistical software which tracks ("how long was what done"), monitors ("what did they do while in the site") and counts ("how many") visitors to sites already exists. Some of these applications have back-office facilities (accounting, follow-up, collections, even tele-marketing). They all provide time trails and some allow for auditing.

This is but a small fragment of the rapidly developing net-scape: people and enterprises who make a living off the Internet craze rather than off the Internet itself. Everyone knows that there is more money in lecturing about how to make money on the Internet - than in the Internet itself. This maxim still holds true despite the 32 billion US dollars in E-commerce in 1998. Business to Consumer (B2C) sales grow less vigorously than Business to Business (B2B) sales and are likely to suffer another blow with the advent of Peer to Peer (P2P) computer networks. The latter allow PCs to act as servers and thus enable the swapping of computer files among connected users (with or without a central directory).

Content Suppliers

This is the underprivileged sector of the Internet. They all lose money (even e-tailers which offer basic, standardized goods - books, CDs - with the exception, until September 11, of sites connected to tourism). No one thanks them for content produced with the investment of a lot of effort and a lot of money. A really qualitative, fully commerce enabled site costs up to 5,000,000 USD, excluding site maintenance and customer and visitor services. Content providers are constantly criticized for lack of creativity or for too much creativity. More and more is asked of them. They are exploited by intermediaries, hitchhikers and other parasites. This is all an off-shoot of the ethos of the Internet as a free content area.

More than 100 million men and women constantly access the Web - but this number stands to grow (the median prediction: 300 million). Yet, while the Web is used by 35% of those with access to the Internet - e-mail is used by more than 60%. E-mail is by far the most common function ("killer app") and specialized applications (Eudora, Internet Mail, Microsoft Exchange) - free or ad sponsored - keep it accessible to all and user-friendly.

Most of the users like to surf (browse, visit sites) the net without reason or goal in mind. This makes it difficult to apply traditional marketing techniques.

What is the meaning of "targeted audiences" or "market shares" in this context?

If a surfer visits sites which deal with aberrant sex and nuclear physics in the same session - what to make of it?

The public and legislative backlash against the gathering of surfers' data by Internet ad agencies and other web sites - has led to growing ignorance regarding the profile of Internet users, their demography, habits, preferences and dislikes.

People like the very act of surfing. They want to be entertained, then they use the Internet as a working tool, mostly in the service of their employer, who, usually foots the bill. Users love free downloads (mainly software).

"Free" is a key word on the Internet: it used to belong to the US Government and to a bunch of universities. Users like information, with emphasis on news and data about new products. But they do not like to shop on the net - yet. Only 38% of all surfers made a purchase during 1998.

67% of them adore virtual sex. 50% of the sites most often visited are porn sites (this is reminiscent of the early days of the Video Cassette Recorder - VCR). People dedicate the same amount of time to watching video cassettes or television as they do to surfing the net. The Internet seems to cannibalize television.

Sex is followed by music, sports, health, television, computers, cinema, politics, pets and cooking sites. People are drawn to interactive games. The Internet will shortly enable people to gamble, if not hampered by legislation. 10 billion USD in gambling money are predicted to pass through the net. This makes sense: nothing like a computer to provide immediate (monetary and psychological) rewards.

Commerce on the net is another favourite. The Internet is a perfect medium for the sale of software and other digital products (e-books). The problem of data security is on its way to being solved with the SET (or other) world standard.

As early as 1995, the Internet had more than 100 virtual shopping malls visited by 2.5 million shoppers (and probably double this number in 1996).

The predictions for 1999 were between 1-5 billion USD of net shopping (plus 2 billion USD through on-line information providers, such as CompuServe and AOL) - proved woefully inaccurate. The actual number in 1998 was 7 times the prediction for 1999.

It is also widely believed that circa 20% of the family budget will pass through the Internet as e-money and this amounts to 150 billion USD.

The Internet will become a giant inter-bank clearing system and varied ATM type banking and investment services will be provided through it. Basically, everything can be done through the Internet: looking for a job, for instance.

Yet, the Internet will never replace human interaction. People are likely to prefer personal banking, window shopping and the social experience of the shopping mall to Internet banking and e-commerce, or m-commerce.

Some sites already sport classified ads. This is not a bad way to defray expenses, though most classified ads are free (it is the advertising they attract that matters).

Another developing trend is website-rating and critique. It will be treated the way today's printed editions are. It will have a limited influence on the consumption decisions of some users. Browsers already sport buttons labelled "What's New" and "What's Hot". Most Search Engines recommend specific sites. Users are cautious. Studies discovered that no user, no matter how heavy, has consistently re-visited more than 200 sites, a minuscule number. The 10 most popular web sites (Yahoo!, MSN, etc.) attracted more than 50% of all Internet traffic. Site recommendation services often produce random - at times, wrong - selections for their user. There are also concerns regarding privacy issues. The backlash against Amazon's "readers' circles" is an example.

Web Critics, who work today mainly for the printed press, will publish their wares on the net and will link to intelligent software which will hyperlink, recommend and refer. Some web critics will be identified with specific applications - really, expert systems which will incorporate their knowledge and experience.

The Money

Where will the capital needed to finance all these developments come from?

Again, there are two schools:

One says that sites will be financed through advertising - and so will search engines and other applications accessed by users.

Certain ASPs (Application Service Providers which rent out access to application software which resides on their servers) are considering this model.

The second version is simpler and allows for the existence of non-commercial content.

It proposes to collect negligible sums (cents or fractions of cents) from every user for every visit ("micro-payments") or a subscription fee. These accumulated cents or subscription fees will enable the owners of old sites to update and to maintain them and encourage entrepreneurs to develop new ones. Certain content aggregators (especially of digital textbooks) have adopted this model (Questia, Fathom).

The adherents of the first school pointed at the 5 million USD invested in advertising during 1995 and to the 60 million or so invested during 1996.

Its opponents point exactly at the same numbers: ridiculously small when contrasted with more conventional advertising modes. The potential of advertising on the net is limited to 1.5 billion USD annually in 1998, thundered the pessimists (many thought that even half that would be very nice). The actual figure was double the prediction but still woefully small and inadequate to support the Internet's content development.

Compare these figures to the sale of Internet software (\$4 billion), Internet hardware (\$3 billion), Internet access provision (\$4.2 billion) in 1995.

Hembrecht and Quist estimated that Internet related industries scooped up 23.2 billion USD annually (A report released in mid-1996).

And what follows advertising is hardly more encouraging.

The consumer interacts and the product is delivered to him. This - the delivery phase - is a slow and enervating epilogue to the exciting affair of ordering through the net at the speed of light. Too many consumers still complain that they do not receive what they ordered, or that delivery is late and products defective.

The solution may lie in the integration of advertising and content. Pointcast, for instance, integrated advertising into its news broadcasts, continuously streamed to the user's screen, even when inactive (they provided a downloadable active screen saver and ticker in a "push technology"). Downloading of digital music, video and text (e-books) will lead to immediate gratification of the consumer and will increase the efficacy of advertising.

Whatever the case may be, a uniform, agreed upon system of rating as a basis for charging advertisers, is sorely needed. There is also the question of what does the advertiser pay for?

Many advertisers (Procter and Gamble, for instance) refuse to pay according to the number of hits or impressions (=entries, visits to a site). They agree to pay only according to the number of the times that their advertisement was hit (page views).

This different basis for calculation is likely to upset all revenue scenarios.

Very few sites of important, respectable newspapers are on a subscription basis. Dow Jones (Wall Street Journal) and The Economist, to mention but two.

Will this become the prevailing trend?

The Internet as a Metaphor

Three metaphors come to mind when considering the Internet "philosophically".

The Internet as a Chaotic Library

1. The Problem of Cataloguing

The Internet is an assortment of billions of pages containing information. Some of them are visible and others are generated from hidden databases by users' requests ("Invisible Internet").

The Internet displays no discernible order, classification, or categorization. As opposed to "classical" libraries, no one has invented a cataloguing standard (remember Dewey?). This is so needed that it is amazing that it has not been invented yet. Some sites indeed apply the Dewey Decimal System (Suite101). Others default to a directory structure (Open Directory, Yahoo!, Look Smart and others).

Had such a standard existed (an agreed upon numerical cataloguing method) - each site would have self-classified. Sites would have an interest to do so to increase their penetration rates and their visibility. This, naturally, would have eliminated the need for today's clunky, incomplete and (highly) inefficient search engines.

A site whose number starts with 900 will be immediately identified as dealing with history and multiple classification will be encouraged to allow finer cross-sections to emerge. An example of such an emerging technology of "self classification" and "self-publication" (though limited to scholarly resources) is the "Academic Resource Channel" by Scindex.

Users will not be required to remember reams of numbers. Future browsers will be akin to catalogues, very much like the applications used in modern day libraries. Compare this utopia to the current dystopy. Users struggle with reams of irrelevant material to finally reach a partial and disappointing destination. At the same time, there likely are web sites which exactly match the poor user's needs. Yet, what currently determines the chances of a happy encounter between user and content - are the whims of the specific search engine used and things like meta-tags, headlines, a fee paid, or the right opening sentences.

2. Screen versus Page

The computer screen, because of physical limitations (size, the fact that it has to be scrolled) fails to effectively compete with the printed page. The latter is still the most ingenious medium yet invented for the storage and release of textual information. Granted: a computer screen is better at highlighting discrete units of information. So, this draws the battle lines: structures (printed pages) versus units (screen), the continuous and easily reversible versus the discrete.

The solution is an efficient way to translate computer screens to printed matter. It is hard to believe, but no such thing exists. Computer screens are still hostile to off-line printing. In other words: if a user copies information from the Internet to his Word Processor (or vice versa, for that matter) - he ends up with a fragmented, garbage-filled and non-aesthetic document.

Very few site developers try to do something about it - even fewer succeed.

3. The Internet and the CD-ROM

One of the biggest mistakes of content suppliers is that they do not mix contents or have a "static-dynamic interaction".

The Internet can now easily interact with other media (especially with audio CDs and with CD-ROMs) - even as the user surfs.

Examples abound:

A shopping catalogue can be distributed on a CD-ROM by mail. The Internet Site will allow the user to order a product previously selected from the catalogue, while off-line. The catalogue could also be updated through the site (as is done with CD-ROM encyclopedias).

The advantages of the CD-ROM are clear: very fast access time (dozens of times faster than the access to a site using a dial up connection) and a data storage capacity tens of times bigger than the average website.

Another example: a CD-ROM can be distributed, containing hundreds of advertisements. The consumer will select the ad that he wants to see and will connect to the Internet to view a relevant video.

He could then also have an interactive chat (or a conference) with a salesperson, receive information about the company, about the ad, about the advertising agency which created the ad - and so on.

CD-ROM based encyclopedias (such as the Britannica, Encarta, Grolier) already contain hyperlinks which carry the user to sites selected by an Editorial Board.

But CD-ROMs are probably a doomed medium. This industry chose to emphasize the wrong things. Storage capacity increased exponentially and, within a year, desktops with 80 Gb hard disks will be common. Moreover, the Network Computer - the stripped down version of the personal computer - will put at the disposal of the average user terabytes in storage capacity and the processing power of a supercomputer. What separates computer users from this utopia is the communication bandwidth. With the introduction of radio, satellite, ADSL broadband services, cable modems and compression methods - video (on demand), audio and data will be available speedily and plentifully.

The CD-ROM, on the other hand, is not mobile. It requires installation and the utilization of sophisticated hardware and software. This is no user friendly push technology. It is nerd-oriented. As a result, CD-ROMs are not an immediate medium. There is a long time lapse between the moment they are purchased and the moment the first data become accessible to the user. Compare this to a book or a magazine. Data in these oldest of media is instantly available to the user and allows for easy and accurate "back" and "forward" functions.

Perhaps the biggest mistake of CD-ROM manufacturers has been their inability to offer an integrated hardware and software package. CD-ROMs are not compact. A Walkman is a compact hardware-cum-software package. It is easily transportable, it is thin, it contains numerous, user-friendly, sophisticated functions, it provides immediate access to data. So does the discman or the MP3-man. This cannot be said of the CD-ROM. By tying its future to the obsolete concept of stand-alone, expensive, inefficient and technologically unreliable personal computers - CD-ROMs have sentenced themselves to oblivion (with the possible exception of reference material).

4. On-line Reference Libraries

These already exist. A visit to the on-line Encyclopaedia Britannica exemplifies some of the tremendous, mind boggling possibilities:

Each entry is hyperlinked to sites on the Internet which deal with the same subject matter. The sites are carefully screened (though more detailed descriptions of each site should be available - they could be prepared either by the staff of the encyclopaedia or by the site owner). Links are available to data in various forms, including audio and video. Everything can be copied to the hard disk or to CD-ROMs.

This is a new conception of a knowledge centre - not just an assortment of material. It is modular, can be added on and subtracted from. It can be linked to a voice Q&A centre. Queries by subscribers can be answered by e-mail, by fax, posted on the site, hard copies can be sent by post. This "Trivial Pursuit" service could be very popular - there is considerable appetite for "Just in Time Information". The Library of Congress - together with a few other libraries - is in the process of making just such a service available to the public (CDRS - Collaborative Digital Reference Service).

5. The Feedback Option

Hard to believe, but very few sites encourage their guests to express an opinion about the site, its contents and its aesthetics. This indicates an ossified mode of thinking about the most dynamic mass medium ever created, the only interactive mass medium yet. Each site must absolutely contain feedback and rating questionnaires. It has the side benefit of creating a database of the visitors to the site.

Moreover, each site can easily become a "knowledge centre".

Let us consider a site dedicated to advertising and marketing:

It can contain feedback questionnaires (what do you think about the site, suggestions for improvement, mailto and leave message facilities, etc.)

It can contain rating questionnaires (rate these ads, these TV or radio shows, these advertising campaigns).

It can allocate some space to clients to create their home pages in (these home pages could lead to their sites, to other sites, to other sections of the host site - and, in any case, will serve as a display of the creative talent of the site owners). This will give the site owners a picture of the distribution of the areas of interest of the visitors to the site.

The site can include statistical, tracking and counter software.

Such a site can refer to hundreds of useful shareware applications (which deal with different aspects of advertising and marketing, for instance). Developers of applications will be able to use the site to promote their products. Other practical applications could also be referred to from - or reside on - the site (browsers, games, search engines).

And all this can be organized in a portal structure (for instance, by adopting the open software of the Open Directory Project).

6. Internet Derived CD-ROMS

The Internet is an enormous reservoir of freely available, public domain, information.

With a minimal investment, this information can be gathered into coherent, theme oriented, cheap CD-ROMs. Each such CD-ROM can contain:

Addresses of web sites specific to the subject matter

- The first pages of each of these sites
- Hyperlinks to each of the sites
- A browser
- Access to all the important search engines
- Recommended search strings (it is extremely difficult to formulate a successful search in the Internet, it takes expertise. "Ready-made searches" will be a hit in the future, as the number of sites grows)
- A dictionary of professional terms, a speller and a thesaurus
- A list of general reference sites
- Shareware specific to the field

7. Publishing

The Internet is the world's largest "publisher", by far. It "publishes" FAQs (Frequent Answers and Questions regarding almost every technical matter in the world), e-zines (electronic versions of magazines, not a very profitable pursuit), the electronic versions of dailies (together with on-line news and information services), reference and other e-books, monographs, articles and minutes of discussions ("threads"), among other types of material.

Publishing an e-zine has a few advantages: it promotes the sales of the printed edition, it helps to sign on subscribers and it leads to the sale of advertising space. The electronic archive function (see next section) saves the need to file back issues, the space required to do so and the irritating search for data items.

The future trend is a combined subscription: electronic (mainly for the archival value and the ability to hyperlink to additional information) and printed (easier to browse current issue).

The electronic daily presents other advantages:

It allows for immediate feedback and for flowing, almost real-time, communication between writers and readers. The electronic version, therefore, acquires a gyroscopic function: a navigation instrument, always indicating deviations from the "right" course. The content can be instantly updated and immediacy has its premium (remember the Lewinsky affair?).

Strangely, this (conventional) field was the first to develop a "virtual reality" facet. There are virtual "magazine stalls". They look exactly like the real thing and the user can buy a paper using his mouse.

Specialty hand held devices already allow for downloading and storage of vast quantities of data (up to 4000 print pages). The user gains access to libraries containing hundreds of texts, adapted to be downloaded, stored and read by the specific device. Again, a convergence of standards is to be expected in this field as well (the final contenders will probably be Adobe's PDF against Microsoft's MS-Reader).

Broadly, e-books are treated either as:

Continuation of print books (p-books) by other means
or as
A whole new publishing universe.

Since p-books are a more convenient medium than e-books - they will prevail in any straightforward "medium replacement" or "medium displacement" battle.

In other words, if publishers will persist in the simple and straightforward conversion of p-books to e-books - then e-books are doomed. They are simply inferior to the price, comfort, tactile delights, browseability and scanability of p-books.

But e-books - being digital - open up a vista of hitherto neglected possibilities. These will only be enhanced and enriched by the introduction of e-paper and e-ink. Among them:

- Hyperlinks within the e-book and without it - to web content, reference works, etc.
- Embedded instant shopping and ordering links
- Divergent, user-interactive, decision driven plotlines
- Interaction with other e-books (using a wireless standard) - collaborative authoring
- Interaction with other e-books - gaming and community activities
- Automatically or periodically updated content
- Multimedia
- Database, Favourites and History Maintenance (reading habits, shopping habits, interaction with other readers, plot related decisions and much more)
- Automatic and embedded audio conversion and translation capabilities
- Full wireless piconetworking and scatternetworking capabilities

The technology is still not fully there. Wars rage in both the wireless and the ebook realms. Platforms compete. Standards clash. Gurus debate. But convergence is inevitable and with it the e-book of the future.

8. The Archive Function

The Internet is also the world's biggest cemetery: tens of thousands of deadbeat sites, still accessible - the "Ghost Sites" of this electronic frontier.

This, in a way, is collective memory. One of the Internet's main functions will be to preserve and transfer knowledge through time. It is called "memory" in biology - and "archive" in library science. The history of the Internet is being documented by search engines (Google) and specialized services (Alexa) alike.

The Internet as a Collective Brain

Drawing a comparison from the development of a human baby - the human race has just commenced to develop its neural system.

The Internet fulfils all the functions of the Nervous System in the body and is, both functionally and structurally, pretty similar. It is decentralized, redundant (each part can serve as functional backup in case of malfunction). It hosts information which is accessible in a few ways, it contains a memory function, it is multimodal (multimedia - textual, visual, audio and animation).

I believe that the comparison is not superficial and that studying the functions of the brain (from infancy to adulthood) - amounts to perusing the future of the Net itself.

1. The Collective Computer

To carry the metaphor of "a collective brain" further, we would expect the processing of information to take place in the Internet, rather than inside the end-user's hardware (the same way that information is processed in the brain, not in the eyes). Desktops will receive the results and communicate with the Net to receive additional clarifications and instructions and to convey information gathered from their environment (mostly, from the user).

This is part fo the philosophy of the JAVA programming language. It deals with applets - small bits of software - and links different computer platforms by means of software.

Put differently:

Future servers will contain not only information (as they do today) - but also software applications. The user of an application will not be forced to buy it. He will not be driven into hardware-related expenditures to accommodate the ever growing size of applications. He will not find himself wasting his scarce memory and computing resources on passive storage. Instead, he will use a browser to call a central computer. This computer will contain the needed software, broken to its elements (=applets, small applications). Anytime the user wishes to use one of the functions of the application, he will siphon it off the central computer. When finished - he will "return" it. Processing speeds and response times will be such that the user will not feel at all that it is not with his own software that he is working (the question of ownership will be very blurred in such a world). This technology is available and it provoked a heated debated about the future shape of the computing industry as a whole (desktops - really power packs - or network computers, a little more than dumb terminals). Applications are already offered to corporate users by ASPs (Application Service Providers).

In the last few years, scientists put the combined power of the computers linked to the internet at any given moment to perform astounding feats of distributed parallel processing. Millions of PCs connected to the net co-process signals from outer space, meteorological data and solve complex equations. This is a prime example of a collective brain in action.

2. The Intranet - a Logical Extension of the Collective Computer

LANs (Local Area Networks) are no longer a rarity in corporate offices. WANs (wide Area Networks) are used to connect geographically dispersed organs of the same legal entity (branches of a bank, daughter companies, a sales force). Many LANs are wireless.

The intranet / extranet and wireless LANs will be the winners. They will gradually eliminate both fixed line LANs and WANs. The Internet offers equal, platform-independent, location-independent and time of day - independent access to all the members of an organization. Sophisticated firewall security application protects the privacy and confidentiality of the intranet from all but the most determined and savvy hackers.

The Intranet is an inter-organizational communication network, constructed on the platform of the Internet and which enjoys all its advantages. The extranet is open to clients and suppliers as well.

The company's server can be accessed by anyone authorized, from anywhere, at any time (with local - rather than international - communication costs). The user can leave messages (internal e-mail or v-mail), access information - proprietary or public - from it and to participate in "virtual teamwork" (see next chapter).

By the year 2002, a standard intranet interface will emerge. This will be facilitated by the opening up of the TCP/IP communication architecture and its availability to PCs. A billion USD will go just to finance intranet servers - or, at least, this is the median forecast.

The development of measures to safeguard server routed inter-organizational communication (firewalls) is the solution to one of two obstacles to the institution of the Intranet. The second problem is the limited bandwidth which does not permit the efficient transfer of audio (not to mention video).

It is difficult to conduct video conferencing through the Internet. Even the voices of discussants who use internet phones come out (slightly) distorted.

All this did not prevent 95% of the Fortune 1000 from installing intranet. 82% of the rest intend to install one by the end of this year. Medium to big size American firms have 50-100 intranet terminals per every internet one.

At the end of 1997, there were 10 web servers per every other type of server in organizations. The sale of intranet related software was projected to multiply by 16 (to 8 billion USD) by the year 1999.

One of the greatest advantages of the intranet is the ability to transfer documents between the various parts of an organization. Consider Visa: it pushed 2 million documents per day internally in 1996.

An organization equipped with an intranet can (while protected by firewalls) give its clients or suppliers access to non-classified correspondence. This notion has its charm. Consider a newspaper: it can give access to all the materials which were discarded by the editors. Some news are fit to print - yet are discarded because of space limitations. Still, someone is bound to be interested. It costs the newspaper close to nothing (the material is, normally, already computer-resident) - and it might even generate added circulation and income. It can be even conceived as an "underground, non-commercial, alternative" newspaper for a wholly different readership.

The above is but one example of the possible use of the intranet to communicate with the organization's consumer base.

3. Mail and Chat

The Internet (its e-mail possibilities) is eroding traditional mail. The market share of the post office in conveying messages by regular mail has dwindled from 77% to 62% (1995). E-mail has expanded to capture 36% (up from 19%).

90% of customers with on-line access use e-mail from time to time and 60% work with it regularly. More than 2 billion messages traverse the internet daily.

E-mail applications are available as freeware and are included in all browsers. Thus, the Internet has completely assimilated what used to be a separate service, to the extent that many people make the mistake of thinking that e-mail is a feature of the Internet. Microsoft continues to incorporate previously independent applications in its browsers - a behaviour which led to the 1999 anti-trust lawsuit against it.

The internet will do to phone calls what it has done to mail. Already there are applications (Intel's, Vocaltec's, Net2Phone) which enable the user to conduct a phone conversation through his computer. The voice quality has improved. The discussants can cut into each others words, argue and listen to tonal nuances. Today, the parties (two or more) engaging in the conversation must possess the same software and the same (computer) hardware. In the very near future, computer-to-regular phone applications will eliminate this requirement. And, again, simultaneous multi-modality: the user can talk over the phone, see his party, send e-mail, receive messages and transfer documents - without obstructing the flow of the conversation.

The cost of transferring voice will become so negligible that free voice traffic is conceivable in 3-5 years. Data traffic will overtake voice traffic by a wide margin.

This beats regular phones.

The next phase will probably involve virtual reality. Each of the parties will be represented by an "avatar", a 3-D figurine generated by the application (or the user's likeness mapped into the software and superimposed on the the avatar). These figurines will be multi-dimensional: they will possess their own communication patterns, special habits, history, preferences - in short: their own "personality".

Thus, they will be able to maintain an "identity" and a consistent pattern of communication which they will develop over time.

Such a figure could host a site, accept, welcome and guide visitors, all the time bearing their preferences in its electronic "mind". It could narrate the news, like "Ananova" does. Visiting sites in the future is bound to be a much more pleasant affair.

4. E-cash

In 1996, the four corporate giants (Visa, MasterCard, Netscape and Microsoft) agreed on a standard for effecting secure payments through the Internet: SET. Internet commerce is supposed to mushroom by a factor of 50 to 25 billion USD. Site owners will be able to collect rent from passing visitors - or fees for services provided within the site. Amazon instituted an honour system to collect donations from visitors. Dedicated visitors will not be deterred by such trifles.

5. The Virtual Organization

The Internet allows simultaneous communication between an almost unlimited number of users. This is coupled with the efficient transfer of multimedia (video included) files.

This opens up a vista of mind boggling opportunities which are the real core of the Internet revolution: the virtual collaborative ("Follow the Sun") modes.

Examples:

A group of musicians will be able to compose music or play it - while spatially and temporally separated;

Advertising agencies will be able to co-produce ad campaigns in a real time interactive mode;

Cinema and TV films will be produced from disparate geographical spots through the teamwork of people who never meet, except through the net.

These examples illustrate the concept of the "virtual community". Locations in space and time will no longer hinder a collaboration in a team: be it scientific, artistic, cultural, or for the provision of services (a virtual law firm or accounting office, a virtual consultancy network).

Two on going developments are the virtual mall and the virtual catalogue.

There are well over 300 active virtual malls in the Internet. They were frequented by 32.5 million shoppers, who shopped in them for goods and services in 1998. The intranet can also be thought of as a "virtual organization", or a "virtual business".

The virtual mall is a computer "space" (pages) in the internet, wherein "shops" are located. These shops offer their wares using visual, audio and textual means. The visitor passes a gate into the store and looks through its offering, until he reaches a buying decision. Then he engages in a feedback process: he pays (with a credit card), buys the product and waits for it to arrive by mail. The manufacturers of digital products (intellectual property such as e-books or software) have begun selling their merchandise on-line, as file downloads.

Yet, slow communications and limited bandwidth - constrain the growth potential of this mode of sale. Once solved - intellectual property will be sold directly from the net, on-line. Until such time, the intervention of the Post Office is still required. So, then virtual mall is nothing but a glorified computerized mail catalogue or Buying Channel, the only difference being the exceptionally varied inventory.

Websites which started as "specialty stores" are fast transforming themselves into multi-purpose virtual malls. Amazon.com, for instance, has bought into a virtual pharmacy and into other virtual businesses. It is now selling music, video, electronics and many other products. It started as a bookstore.

This contrasts with a much more creative idea: the virtual catalogue. It is a form of narrowcasting (as opposed to broadcasting): a surgically accurate targeting of potential consumer audiences. Each group of profiled consumers (no matter how small) is fitted with their own - digitally generated - catalogue. This is updated daily: the variety of wares on offer (adjusted to reflect inventory levels, consumer preferences and goods in transit) - and prices (sales, discounts, package deals) change in real time.

The user will enter the site and there delineate his consumption profile and his preferences. A customized catalogue will be immediately generated for him.

From then on, the history of his purchases, preferences and responses to feedback questionnaires will be accumulated and added to a database.

Each catalogue generated for him will come replete with order forms. Once the user concluded his purchases, his profile will be updated.

There is no technological obstacles to implementing this vision today - only administrative and legal ones. Big retail stores are not up to processing the flood of data expected to arrive. They also remain highly sceptical regarding the feasibility of the new medium. And privacy issues prevent data mining or the effective collection and usage of personal data.

The virtual catalogue is a private case of a new internet off-shoot: the "smart (shopping) agents". These are AI applications with "long memories".

They draw detailed profiles of consumers and users and then suggest purchases and refer to the appropriate sites, catalogues, or virtual malls.

They also provide price comparisons and the new generation (NetBot) cannot be blocked or fooled by using differing product categories.

In the future, these agents will refer also to real life retail chains and issue a map of the branch or store closest to an address specified by the user (the default being his residence). This technology can be seen in action in a few music sites on the web and is likely to be dominant with wireless internet appliances. The owner of an internet enabled (third generation) mobile phone is likely to be the target of geographically-specific marketing campaigns, ads and special offers pertaining to his current location (as reported by his GPS - satellite Geographic Positioning System).

6. Internet News

Internet news are advantaged. They can be frequently and dynamically updated (unlike static print news) and be always accessible (similar to print news), immediate and fresh.

The future will witness a form of interactive news. A special "corner" in the site will be open to updates posted by the public (the equivalent of press releases). This will provide readers with a glimpse into the making of the news, the raw material news are made of. The same technology will be applied to interactive TVs. Content will be downloaded from the internet and be displayed as an overlay on the TV screen or in a square in a special location. The contents downloaded will be directly connected to the TV programming. Thus, the biography and track record of a football player will be displayed during a football match and the history of a country when it gets news coverage.

Terra Internetica - Internet, an Unknown Continent

This is an unconventional way to look at the Internet. Laymen and experts alike talk about "sites" and "advertising space". Yet, the Internet was never compared to a new continent whose surface is infinite.

The Internet will have its own real estate developers and construction companies. The real life equivalents derive their profits from the scarcity of the resource that they exploit - the Internet counterparts will derive their profits from the tenants (the content).

Two examples:

A few companies bought "Internet Space" (pages, domain names, portals), developed it and make commercial use of it by:

- renting it out
- constructing infrastructure and selling it
- providing an intelligent gateway, entry point to the rest of the internet
- or selling advertising space which subsidizes the tenants (Yahoo!-Geocities, Tripod and others).
- Cybersquatting (purchasing specific domain names identical to brand names in the "real" world) and then selling the domain name to an interested party

Internet Space can be easily purchased or created. The investment is low and getting lower with the introduction of competition in the field of domain registration services and the increase in the number of top domains.

Then, infrastructure can be erected - for a shopping mall, for free home pages, for a portal, or for another purpose. It is precisely this infrastructure that the developer can later sell, lease, franchise, or rent out.

At the beginning, only members of the fringes and the avant-garde (inventors, risk assuming entrepreneurs, gamblers) invest in a new invention. The invention of a new communications technology is mostly accompanied by devastating silence.

No one knows to say what are the optimal uses of the invention (in other words, what is its future). Many - mostly members of the scientific and business elites - argue that there is no real need for the invention and that it substitutes a new and untried way for old and tried modes of doing the same thing (so why assume the risk?)

These criticisms are usually founded:

To start with, there is, indeed, no need for the new medium. A new medium invents itself - and the need for it. It also generates its own market to satisfy this newly found need.

Two prime examples are the personal computer and the compact disc.

When the PC was invented, its uses were completely unclear. Its performance was lacking, its abilities limited, it was horribly user unfriendly.

It suffered from faulty design, absent user comfort and ease of use and required considerable professional knowledge to operate. The worst part was that this knowledge was unique to the new invention (not portable).

It reduced labour mobility and limited one's professional horizons. There were many gripes among those assigned to tame the new beast.

The PC was thought of, at the beginning, as a sophisticated gaming machine, an electronic baby-sitter. As the presence of a keyboard was detected and as the professional horizon cleared it was thought of in terms of a glorified typewriter or spreadsheet. It was used mainly as a word processor (and its existence justified solely on these grounds). The spreadsheet was the first real application and it demonstrated the advantages inherent to this new machine (mainly flexibility and speed). Still, it was more (speed) of the same. A quicker ruler or pen and paper. What was the difference between this and a hand held calculator (some of them already had computing, memory and programming features)?

The PC was recognized as a medium only 30 years after it was invented with the introduction of multimedia software. All this time, the computer continued to spin off markets and secondary markets, needs and professional specialities. The talk as always was centred on how to improve on existing markets and solutions.

The Internet is the computer's first important breakthrough. Hitherto the computer was only quantitatively different - the multimedia and the Internet have made it qualitatively superior, actually, sui generis, unique.

This, precisely, is the ghost haunting the Internet:

It has been invented, is maintained and is operated by computer professionals. For decades these people have been conditioned to think in Olympic terms: more, stronger, higher. Not: new, unprecedented, non-existent. To improve - not to invent. They stumbled across the Internet - it invented itself despite its own creators.

Computer professionals (hardware and software experts alike) - are linear thinkers. The Internet is non linear and modular.

It is still the age of hackers. There is still a lot to be done in improving technological prowess and powers. But their control of the contents is waning and they are being gradually replaced by communicators, creative people, advertising executives, psychologists and the totally unpredictable masses who flock to flaunt their home pages.

These all are attuned to the user, his mental needs and his information and entertainment preferences.

The compact disc is a different tale. It was intentionally invented to improve upon an existing technology (basically, Edison's Gramophone). Market-wise, this was a major gamble: the improvement was, at first, debatable (many said that the sound quality of the first generation of compact discs was inferior to that of its contemporaneous record players). Consumers had to be convinced to change both software and hardware and to dish out thousands of dollars just to listen to what the manufacturers claimed was better quality Bach. A better argument was the longer life of the software (though contrasted with the limited life expectancy of the consumer, some of the first sales pitches sounded absolutely morbid).

The computer suffered from unclear positioning. The compact disc was very clear as to its main functions - but had a rough time convincing the consumers.

Every medium is first controlled by the technical people. Gutenberg was a printer - not a publisher. Yet, he is the world's most famous publisher. The technical cadre is joined by dubious or small-scale entrepreneurs and, together, they establish ventures with no clear vision, market-oriented thinking, or orderly plan of action. The legislator is also dumbfounded and does not grasp what is happening - thus, there is no legislation to regulate the use of the medium. Witness the initial confusion concerning copyrighted software and the copyrights of ROM embedded software. Abuse or under-utilization of resources grow. Recall the sale of radio frequencies to the first cellular phone operators in the West - a situation which repeats itself in Eastern and Central Europe nowadays.

But then more complex transactions - exactly as in real estate in "real life" - begin to emerge.

This distinction is important. While in real life it is possible to sell an undeveloped plot of land - no one will buy "pages". The supply of these is unlimited - their scarcity (and, therefore, their virtual price) is zero.

The second example involves the utilization of a site - rather than its mere availability.

A developer could open a site wherein first time authors will be able to publish their first manuscript - for a fee. Evidently, such a fee will be a fraction of what it would take to publish a "real life" book. The author could collect money for any downloading of his book - and split it with the site developer. The potential buyers will be provided with access to the contents and to a chapter of the books. This is currently being done by a few fledgling firms but a full scale publishing industry has not yet developed.

The Life of a Medium

The internet is simply the latest in a series of networks which revolutionized our lives. A century before the internet, the telegraph, the railways, the radio and the telephone have been similarly heralded as "global" and transforming.

Every medium of communications goes through the same evolutionary cycle:

Anarchy

The Public Phase

At this stage, the medium and the resources attached to it are very cheap, accessible, under no regulatory constraints. The public sector steps in: higher education institutions, religious institutions, government, not for profit organizations, non governmental organizations (NGOs), trade unions, etc. Bedevilled by limited financial resources, they regard the new medium as a cost effective way of disseminating their messages.

The Internet was not exempt from this phase which ended only a few years ago. It started with a complete computer anarchy manifested in ad hoc networks, local networks, networks of organizations (mainly universities and organs of the government such as DARPA, a part of the defence establishment, in the USA). Non commercial entities jumped on the bandwagon and started sewing these networks together (an activity fully subsidized by government funds). The result was a globe encompassing network of academic institutions. The American Pentagon established the network of all networks, the ARPANET. Other government departments joined the fray, headed by the National Science Foundation (NSF) which withdrew only lately from the Internet.

The Internet (with a different name) became semi-public property - with access granted to the chosen few.

Radio took precisely this course. Radio transmissions started in the USA in 1920. Those were anarchic broadcasts with no discernible regularity. Non commercial organizations and not for profit organizations began their own broadcasts and even created radio broadcasting infrastructure (albeit of the cheap and local kind) dedicated to their audiences. Trade unions, certain educational institutions and religious groups commenced "public radio" broadcasts.

The Commercial Phase

When the users (e.g., listeners in the case of the radio, or owners of PCs and modems in the example of the Internet) reach a critical mass - the business sector is alerted. In the name of capitalist ideology (another religion, really) it demands "privatization" of the medium. This harps on very sensitive strings in every Western soul: the efficient allocation of resources which is the result of competition, corruption and inefficiency naturally associated with the public sector ("Other People's Money" - OPM), the ulterior motives of members of the ruling political echelons (the infamous American Paranoia), a lack of variety and of catering to the tastes and interests of certain audiences, the equation private enterprise = democracy and more.

The end result is the same: the private sector takes over the medium from "below" (makes offers to the owners or operators of the medium - that they cannot possibly refuse) - or from "above" (successful lobbying in the corridors of power leads to the appropriate legislation and the medium is "privatized").

Every privatization - especially that of a medium - provokes public opposition. There are (usually founded) suspicions that the interests of the public were compromised and sacrificed on the altar of commercialization and rating. Fears of monopolization and cartelization of the medium are evoked - and justified, in due time. Otherwise, there is fear of the concentration of control of the medium in a few hands. All these things do happen - but the pace is so slow that the initial fears are forgotten and public attention reverts to fresher issues.

A new Communications Act was legislated in the USA in 1934. It was meant to transform radio frequencies into a national resource to be sold to the private sector which will use it to transmit radio signals to receivers. In other words: the radio was passed on to private and commercial hands. Public radio was doomed to be marginalized.

The American administration withdrew from its last major involvement in the Internet in April 1995, when the NSF ceased to finance some of the networks and, thus, privatized its hitherto heavy involvement in the net.

A new Communications Act was legislated in 1996. It permitted "organized anarchy". It allowed media operators to invade each other's territories.

Phone companies will be allowed to transmit video and cable companies will be allowed to transmit telephony, for instance. This is all phased over a long period of time - still, it is a revolution whose magnitude is difficult to gauge and whose consequences defy imagination. It carries an equally momentous price tag - official censorship. "Voluntary censorship", to be sure, somewhat toothless standardization and enforcement authorities, to be sure - still, a censorship with its own institutions to boot. The private sector reacted by threatening litigation - but, beneath the surface it is caving in to pressure and temptation, constructing its own censorship codes both in the cable and in the internet media.

Institutionalization

This phase is the next in the Internet's history, though, it seems, unbeknownst to it.

It is characterized by enhanced activities of legislation. Legislators, on all levels, discover the medium and lurch at it passionately. Resources which were considered "free", suddenly are transformed to "national treasures not to be dispensed with cheaply, casually and with frivolity".

It is conceivable that certain parts of the Internet will be "nationalized" (for instance, in the form of a licensing requirement) and tendered to the private sector. Legislation will be enacted which will deal with permitted and disallowed content (obscenity? incitement? racial or gender bias?)

No medium in the USA (not to mention the wide world) has eschewed such legislation. There are sure to be demands to allocate time (or space, or software, or content, or hardware) to "minorities", to "public affairs", to "community business". This is a tax that the business sector will have to pay to fend off the eager legislator and his nuisance value.

All this is bound to lead to a monopolization of hosts and servers. The important broadcast channels will diminish in number and be subjected to severe content restrictions. Sites which will not succumb to these requirements - will be deleted or neutralized. Content guidelines (euphemism for censorship) exist, even as we write, in all major content providers (CompuServe, AOL, Geocities, Tripod, Prodigy).

The Bloodbath

This is the phase of consolidation. The number of players is severely reduced. The number of browser types will be limited to 2-3 (Netscape, Microsoft and which else?). Networks will merge to form privately owned mega-networks. Servers will merge to form hyper-servers run on supercomputers in "server farms". The number of ISPs will be considerably cut.

50 companies ruled the greater part of the media markets in the USA in 1983. The number in 1995 was 18. At the end of the century they will number 6.

This is the stage when companies - fighting for financial survival - strive to acquire as many users/listeners/viewers as possible. The programming is shallowed to the lowest (and widest) common denominator. Shallow programming dominates as long as the bloodbath proceeds.

From Rags to Riches

Tough competition produces four processes:

1. A Major Drop in Hardware Prices

This happens in every medium but it doubly applies to a computer-dependent medium, such as the Internet.

Computer technology seems to abide by "Moore's Law" which says that the number of transistors which can be put on a chip doubles itself every 18 months. As a result of this miniaturization, computing power quadruples every 18 months and an exponential series ensues. Organic-biological-DNA computers, quantum computers, chaos computers - prompted by vast profits and spawned by inventive genius will ensure the longevity and continued applicability of Moore's Law.

The Internet is also subject to "Metcalf's Law".

It says that when we connect N computers to a network - we get an increase of N to the second power in its computing / processing power. And these N computers are more powerful every year, according to Moore's Law.

The growth of computing powers in networks is a multiple of the effects of the two laws. More and more computers with ever increasing computing power get connected and create an exponential 16 times growth in the network's computing power every 18 months.

2. Free Availability of Software and Connection

This is prevalent in the Net where even potentially commercial software can be downloaded for free. In many countries television viewers still pay for television broadcasts - but in the USA and many other countries in the West, the basic package of television channels comes free of charge.

As users / consumers form a habit of using (or consuming) the software - it is commercialized and begins to carry a price tag. This is what happened with the advent of cable television: contents are sold for subscription and usage (Pay Per View - PPV) fees.

Gradually, this is what will happen to most of the sites and software on the Net. Those which survive will begin to collect usage fees, access fees, subscription fees, downloading fees and other, appropriately named, fees. These fees are bound to be low - but it is the principle that counts. Even a few cents per transaction will accumulate to hefty sums with the traffic which will characterize the Net (or, at least its more popular locales).

Advertising revenues will allow ISPs to offer free communication and storage volume. Gradually, connect time charges imposed by the phone companies will be eroded by tough competition from the likes of the cable companies. Accessing the internet might well be free of all charges in 10 years time.

3. Increased User Friendliness

As long as the computer is less user friendly and less reliable (predictable) than television - less of a black box - its potential (and its future) is limited. Television attracts 3.5 billion users daily. The Internet will attract - under the most exuberant scenario - less than one tenth of this number of people. The only reasons for this disparity are (the lack of) user friendliness and reliability. Even browsers, among the most user friendly applications ever - are not sufficiently so. The user still needs to know how to use a keyboard and must possess some basic acquaintance with the operating system.

The more mature the medium, the more friendly it becomes. Finally, it will be operated using speech or common language. There will be room left for user "hunches" and built in flexible responses.

4. Social Taxes

Sooner or later, the business sector has to mollify the God of public opinion by offerings of political and social nature. The Internet is an affluent, educated, yuppie medium. It necessitates a control of the English language, live interest in information and its various uses (scientific, commercial, other), a lot of resources (free time, money to invest in hardware, software and connect time). It empowers - and thus deepens the divide between the haves and have-nots, the knowing and the ignorant, the computer illiterate.

In short: the Internet is an elitist medium. Publicly, this is an unhealthy posture. "Internetophobia" is already discernible. People (and politicians) talk about how unsafe the Internet is and about its possible uses for racial, sexist and pornographic purposes. The wider public is in a state of awe.

So, site builders and owners will do well to begin to improve their image: provide free access to schools and community centres, bankroll internet literacy classes, freely distribute contents and software to educational institutions, collaborate with researchers and social scientists and engineers.

In short: encourage the view that the Internet is a medium catering to the needs of the community and the underprivileged, a mostly altruist endeavour. This also happens to make good business sense by educating a future generation of users. He who visited a site when a student, free of charge - will pay to do so when made an executive. Such a user will also pass on the information within and without his organization. This is called media exposure.

The future will, no doubt, witness public Internet terminals, subsidized ISP accounts, free Internet classes and an alternative "non-commercial, public" approach to the Net.

The Internet: Medium or Chaos?

There has never been a medium like the Internet. The way it has formed, the way it was (not) managed, its hardware-software-communications specifications - are all unique.

No Government

The Internet has no central (or even decentralized) structure. In reality, it hardly has a structure at all. It is a collection of 16 million computers (end 1996) connected through thousands of networks. There are organizations which purport to set Internet standards (like the aforementioned ISOC, or the domain setting ICANN) - but they are all voluntary organizations, with no binding legal, enforcement, or adjudication powers. The result is often mayhem.

Many erroneously call the Internet the first democratic medium. Yet, it hardly qualifies as a medium and by no stretch of terminology is it democratic. Democracy has institutions, hierarchies, order. The Internet has none of these things. There are some vague understandings as to what is and is not allowed. This is a "code of honour" (more reminiscent of the Sicilian Mob than of the British Parliament, let's say). Violations are punished by excommunication (of the violating site or person).

The Internet has culture - but no education. Freedom of Speech is entrenched. Members of this virtual community react adversely to ideas of censorship, even when applied to hard core porno. In 1999, hackers hacked major government sites following an FBI initiative against hacking-related crimes. Government initiatives (in the USA, in France, the lawsuit against the General Manager of AOL in Germany) are acutely criticized. In the meantime, the spirit of the Internet prevails: the small man's medium. What seems to be emerging, though, is self censorship by content providers (such as AOL and CompuServe).

Independence

The Internet is not dependent upon a given hardware or software. True, it is accessible only through computers and there are dominant browsers.

But the Internet accommodates any digital (bit transfer) platform. Internet will be incorporated in the future into portable computers, palmtops, PDAs, mobile phones, cable television, telephones (with voice interface), home appliances and even wrist watches. It will be accessible to all, regardless of hardware and software.

The situation is, obviously, different with other media. There is standard hardware (the television set, the radio receiver, the digital print equipment). Data transfer modes are standardized as well. The only variable is the contents - and even this is standardized in an age of American cultural imperialism. Today, one can see the same television programs all over the globe, regardless of cultural or geographical differences.

Here is a reasonable prognosis for the Internet:

It will "broadcast" (it is, of course, a PULL medium, not a PUSH medium - see next chapter) to many kinds of hardware. Its functions will be controlled by 2-5 very common software applications. But it will differ from television in that contents will continue to be decentralized: every point on the Net is a potential producer of content at low cost. This is the equivalent of producing a talk show using a single home video camera. And the contents will remain varied.

Naturally, marketing content (sites) will remain an expensive art. Sites will also be richer or poorer, in accordance with the investment made in them.

Non Linearity and Functional Modularity

The Internet is the first medium in human history that is non-linear and totally modular.

A television program is broadcast from a transmitter, through the airwaves to a receiver (=the television set). The viewer sits opposite this receiver and passively watches. This is an entirely linear process. The Internet is different:

When communicating through the Internet, there is no way to predict how the information will reach its destination. The routing of information through the network is completely random, very much like the principle governing the telephony system (but on a global scale). The latter is not a point-to-point linear network. Rather, it is a network of networks. Our voice is transmitted back and forth inside a gigantic maze of copper wires and optic fibres. It seeps through any available wire - until it reaches its destination.

It is the same with the Internet.

Information is divided to packets. An address is attached to each packet and - using the TCP/IP data transfer protocol - is dispatched to roam this worldwide labyrinth. But the path from one neighbourhood of London to another may traverse Japan.

The really ingenious thing about the Internet is that each computer (each receiver or end user) indeed burdens the system by imposing on it its information needs (as is the case with other media) - but it also assists in the task of pushing information packets on to their destinations. It seems that this contribution to the system outweighs the burdens imposed upon it.

The network has a growth potential which is always bigger than the number of its users. It is as though television sets assisted in passing the signals received by them to other television sets. Every computer which is a member of the network is both a message (content) and a medium (active information channel), both a transmitter and a receiver. If 30% of all computers on the Net were to crash - there will be no operational impact (there is enormous built in redundancy). Obviously, some contents will no longer be available (information channels will be affected).

The interactivity of this medium is a guarantee against the monopolization of contents. Anyone with a thousand dollars can launch his/her own (reasonably sophisticated) site, accessible to all other Internet users. Space is available through home page providers.

The name of the game is no longer the production - it is the creative content (design), the content itself and, above all, the marketing of the site.

The Internet is an infinite and unlimited resource. This goes against the grain of the most basic economic concept (of scarcity). Each computer that joins the Internet strengthens it exponentially - and tens of thousands join daily. The Internet infrastructure (maybe with the exception of communication backbones) can accommodate an annual growth of 100% to the year 2020. It is the user who decides whether to increase the Internet's infrastructure by connecting his computer to it. By comparison: it is as though it were possible to produce and to broadcast radio programmes from every radio receiver. Each computer is a combination of studio and transmitter (on the Internet).

In reality, there is no other interactive medium except the Internet. Cable TV does not allow two-way data transfer (from user to cable operator). If the user wants to buy a product - he has to phone. Interactive television is an abject failure (the Sony and TCI experiments were terminated). This all is notwithstanding the combining of the Internet with satellite capabilities (VSAT) or with the revenant digital television.

The television screen is inferior when compared to the computer screen. Only the Internet is there as a true two-way possibility. The technological problems that besieged it are slowly dissipating.

The Internet allows for one-dimensional and bi - dimensional interactivity.

One-dimensional interactivity: fill in and dispatch a form, send and receive messages (through e-mail or v-mail).

Two-dimensional interactivity: to talk to someone while both parties work on an application, to see your conversant, to talk to him and to transfer documents to him for his perusal as the conversation continues apace.

This is no longer science fiction. In less than five years this will be as common as the telephone - and it will have a profound effect on the traditional services provided by the phone companies. Internet phones, Internet videophones - they will be serious competitors and the phone companies are likely to react once they begin to feel the heat. This will happen when the Internet will acquire black box features. Phone companies, software giants and cable TV operators are likely to end up owning big chunks of the lucrative future market of the Net.

The Solitary Medium

The Internet is NOT a popular medium. It is the medium of affluent executives who fully master the English language, as part of a wider general education.

Alternatively, it is the medium of academia (students, lecturers), or of children of the former, well-to-do group. In any case, it is not the medium of the "wide public". It is also a highly individualistic medium.

The Internet was an initiative of the DOD (Department of Defence in the USA). It was later "requisitioned" by the National science Fund (NSF) in the USA. This continuous involvement of the administration came to an end in 1995 when the medium was "privatized".

This "privatization" was a recognition of the civilian roots of the Internet. It was - and is still being - formed by millions of information-intoxicated users. They formed networks to exchange bits and pieces of mutual interest. Thus, as opposed to all other media, the Internet was not invented, nor was its market. The inventors of the telephone, the telegraph, the radio, the television and the compact disc - all invented previously non-existent markets for their products. It took time, effort and money to convince consumers that they needed these "gadgets".

By contrast, the Internet was invented by its own consumers and so was the market for it. Only when the latter was fully forged did producers and businessmen join in. Microsoft began to hesitantly test the internet waters only in 1995!

On Line Memories

The Internet is the only medium with online memory, very much like the human brain. The memories of these two - the Net and the Brain - are immediately accessible. In both, it is stored in sites and in both, it does not grow old or is eliminated. It is possible to find sites which commemorate events the same way that the human mind registers them. This is Net Memory. The history of a site can be reviewed. The Library of Congress stores the consecutive development phases of sites. The Internet is an amazing combination of data processing software, data, a record of all the activities which took place in connection with the data and the memory of these records. Only the human brain is recalled by these capacities: one language serves all these functions, the language of the neurones.

There is a much clearer distinction even in computers (not to mention more conventional media, such as television).

Raw English - the Language of Raw Materials

The following - apparently trivial - observation is critical:

All the other media provide us with processed, censored, "clean" content.

The Internet is a medium of raw materials, partly well organized (the rough equivalent of a newspaper) - and partly still in raw form, yesterday's supper.

This is a result of the immediate and absolute access afforded each user: access to programming and site publishing tools - as well as access to computer space on servers. This leads to varying degrees of quality of contents and content providers and this, in turn, prevents monopolization and cartelization of the information supply channels.

The users of the Internet are still undecided: do they prefer drafts or newspapers. They frequent well designed sites. There are even design competitions and awards. But they display a preference for sites that are constantly updated (i.e. closer in their nature to a raw material - rather than to a finished product). They prefer sites from which they can download material to quietly process at home, alone, on their PCs, at their leisure.

Even the concept of "interactivity" points at a preference for raw materials with which one can interact. For what is interactivity if not the active involvement of the user in the creation of content?

The Internet users love to be involved, to feel the power in their fingertips, they are all addicted to one form of power or another.

Similarly, a car completely automatically driven and navigated is not likely to sell well. Part of the experience of driving - the sensation of power ("power stirring") - is critical to the purchase decision.

It is not in vain that the metaphor for using the Internet is "surfing" (and not, let's say, browsing).

The problem is that the Internet is still predominantly an English language medium (though it is fast changing). It discriminates against those whose mother tongue is different. All software applications work best in English. Otherwise they have to be adapted and fitted with special fonts (Hebrew, Arabic, Japanese, Russian and Chinese - each present a different set of problems to overcome). This situation might change with the attainment of a critical mass of users (some say, 2 million per non-Anglophone country).

Comprehensive (Virtual) Reality

This is the first (though, probably, not the last) medium which allows the user to conduct his whole life within its boundaries.

Television presents a clear division: there is a passive viewer. His task is to absorb information and subject it to minimal processing. The Internet embodies a complete and comprehensive (virtual) reality, a full fledged alternative to real life.

The illusion is still in its infancy - and yet already powerful.

The user can talk to others, see them, listen to music, see video, purchase goods and services, play games (alone or with others scattered around the globe), converse with colleagues, or with users with the same hobbies and areas of interest, to play music together (separated by time and space).

And all this is very primitive. In ten years time, the Internet will offer its users the option of video conferencing (possibly, three dimensional, holographic). The participants' figures will be projected on big screens. Documents will be exchanged, personal notes, spreadsheets, secret counteroffers.

Virtual Reality games will become reality in less time. Special end-user equipment will make the player believe that he, actually, is part of the game (while still in his room). The player will be able to select an image borrowed from a database and it will represent him, seen by all the other players. Everyone will, thus, end up invading everyone else's private space - without encroaching on his privacy!

The Internet will be the medium of choice for phone and videophone communication (including conferencing).

Many mundane activities will be done through Internet: banking, shopping for standard items, etc.

The above are examples to the Internet's power and ability to replace our reality in due time. A world out there will continue to exist - but, more and more we will interact with it through the enchanted interface of the Net.

A Brave New Net

The future of a medium in the making is difficult to predict. Suffice it to mention the ridiculous prognoses which accompanied the PC (it is nothing but a gaming gadget, it is a replacement for the electric typewriter, will be used only by business). The telephone also had its share of ludicrous statements: no one - claimed the "experts" would like to avoid eye contact while talking. Or television: only the Nazi regime seemed to have fully grasped its potential (in the Berlin 1936 Olympics). And Bill Gates thought that the internet has a very limited future as late as 1995!!!

Still, this medium has a few characteristics which differentiate it from all its predecessors. Were these traits to be continuously and creatively exploited - a few statements can be made about the future of the Net with relative assurance.

Time and Space Independence

This is the first medium in history which does not require the simultaneous presence of people in space-time in order to facilitate the transfer of information. Television requires the existence of studio technicians, narrators and others in the transmitting side - and the availability of a viewer in the receiving side. The phone is dependent on the existence of two or more parties simultaneously.

With time, tools to bridge the time gap between transmitter and receiver were developed. The answering machine and the video cassette recorder both accumulate information sent by a transmitter - and release it to a receiver in a different space and time. But they are discrete, their storage volume is limited and they do not allow for interaction with the transmitter.

The Internet does not have these handicaps.

It facilitates the formation of "virtual organizations / institutions / businesses/ communities". These are groups of users that communicate in different points in space and time, united by a common goal or interest.

A few examples:

The Virtual Advertising Agency

A budget executive from the USA will manage the account of a hi-tech firm based in Sydney. He will work with technical experts from Israel and with a French graphics office. They will all file their work (through the intranet) in the Net, to be studied by the other members of this virtual group. These will enter the right site after clearing a firewall security software. They will all be engaged in flexiwork (flexible working times) and work from their homes or offices, as they please. Obviously, they will all abide by a general schedule.

They will exchange audio files (the jingle, for instance), graphics, video, colour photographs and text. They will comment on each other's work and make suggestions using e-mail. The client will witness the whole creative process and will be able to contribute to it. There is no technological obstacle preventing the participation of the client's clients, as well.

Virtual Rock'n'Roll

It is difficult to imagine that "virtual performances will replace real life ones.

The mass rock concert has its own inimitable sounds, palette and smells. But a virtual production of a record is on the cards and it is tens of percents cheaper than a normal production. Again, the participants will interact through the Intranet. They will swap notes, play their own instruments, make comments by e-mail, play together using an appropriate software. If one of them is grabbed by inspiration in the middle of (his) night, he will be able to preserve and pass on his ideas through the Net. The creative process will be aided by novel applications which enable the simultaneous transfer of sound over the Net. The processes which are already digitized (the mix, for one) will pose no problem to a digitized medium. Other applications will let the users listen to the final versions and even ask the public for his preview opinion.

Thus, even creative processes which are perceived as demanding human presence - will no longer do so with the advent of the Net.

Perhaps it is easier to understand a ***Virtual Law Firm or Virtual Accountants Office.***

In the extreme, such a firm will not have physical offices, at all. The only address will be an e-mail address. Dozens of lawyers from all over the world with hundreds of specialities will be partners in such an office. Such an office will be truly multinational and multidisciplinary. It will be fast and effective because its members will electronically swap information (precedents, decrees, laws, opinions, research and plain ideas or professional experience).

It will be able to service clients in every corner of the globe. It will involve the transfer of audio files (NetPhones), text, graphics and video (crucial in certain types of litigation). Today, such information is sent by post and messenger services. Whenever different types of information are to be analysed - a physical meeting is a must. Otherwise, each type of information has to be transferred separately, using unique equipment for each one.

Simultaneity and interactivity - this will be the name of the game in the Internet. The professional term is "Coopetition" (cooperation between potential competitors, using the Internet).

Other possibilities: a virtual production of a movie, a virtual research and development team, a virtual sales force. The harbingers of the virtual university, the virtual classroom and the virtual (or distance) medical centre are here.

The Internet - Mother of all Media

The Internet is the technological solution to the mythological "home entertainment centre" debate.

It is almost universally agreed that, in the future, a typical home will have one apparatus which will give it access to all types of information. Even the most daring did not talk about simultaneous access to all the types of information or about full interactivity.

The Internet will offer exactly this: access to every conceivable type of information simultaneously, the ability to process them at the same time and full interactivity. The future image of this home centre is fairly clear - it is the timing that is not. It is all dependent on the availability of a wide (information) band - through which it will be possible to transfer big amounts of data at high speeds, using the same communications line. Fast modems were coupled with optic fibres and with faulty planning and vision of future needs. The cable television industry, for instance, is totally technologically unprepared for the age of interactivity. This is only partly the result of unwise, restrictive, legislation which prohibits data vendors from stepping on each others' toes. Phone companies were not permitted to provide Internet services or to transfer video through their wires - and cable companies were not allowed to transmit phone calls.

It is a question of time until these fossilized remains are removed by the almighty hand of the market. When this happens, the home centre is likely to look like this:

A central computer attached to a big screen divided to windows. Television is broadcast on one window. A software application is running on another. This could be an application connected to the television program (deriving data from it, recording it, collating it with pertinent data it picks out of databases). It could be an independent application (a computer game).

Updates from the New York Stock exchange flash at the corner of the screen and an icon blinks to signal the occurrence of a significant economic event.

A click of the mouse (?) and the news flash is converted to a voice message. Another click and your broker is on the InternetPhone (possibly seen in a third window on the screen). You talk, you send him a fax containing instructions and you compare notes. The fax was printed on a word processing application which opened up in yet another window.

Many believe that communication with the future generation of computers will be voice communication. This is difficult to believe. It is weird to talk to a machine (especially in the presence of other humans). We are seriously inhibited this way. Moreover, voice will interrupt other people's work or pleasure. It is also close to impossible to develop an efficient voice recognition software. Not to mention mishaps such as accidental activation.

The Friendly Internet

The Internet will not escape the processes experienced by all other media.

It will become easy to operate, user-friendly, in professional parlance.

It requires too much specialized information. It is not accessible to those who lack basic hardware and (Windows) software concepts.

Alas, most of the population falls into the latter category. Only 30 million "Windows" operating systems were sold worldwide at the end of 1996. Even if this constitutes 20% of all the copies (the rest being pirated versions) - it still represents less than 3% of the population of the world. And this, needless to say, is the world's most popular software (following the DOS operating system).

The Internet must rely on something completely different. It must have sophisticated, transparent-to-the-user search engines to guide to the cavernous chaotic libraries which will typify it. The search engines must include complex decision making algorithms. They must understand common languages and respond in mundane speech. They will be efficient and incredibly fast because they will form their own search strategy (supplanting the user's faulty use of syntax).

These engines, replete with smart agents will refer the user to additional data, to cultural products which reflect the user's history of preferences (or pronounced preferences expressed in answers to feedback questionnaires). All the decisions and activities of the user will be stored in the memory of his search engine and assist it in designing its decision making trees. The engine will become an electronic friend, advise the user, even on professional matters.

Cease-Fire

The cessation of hostilities between the Internet and some off-the-shelf software applications heralds the commencement of the integration between the desktop computer and the Net. This is a small step for the user - and a big one for humanity. The animosity which prevailed until recently between the UNIX systems and the HTML language and between most of the standard applications (headed by the Word Processors) - has officially ended with the introduction of Office 97 which incorporates full HTML capabilities. With the Office 2000 products, the distinctions between a web computing environment and a PC computing one - have all but vanished. Browsers can replace operating systems, word processors can browse, download and upload - the PC has finally been entirely absorbed by its offspring, the internet.

The Portable Document Format (PDF) enables the user to work the Internet off-line. In other words: text files will be loaded to word processors and edited off-line. The same applies to other types of files (audio, video).

Downloading time will be speeded up (today, it takes so long to download an audio or video file that, many times, it is impracticable).

This is not a trivial matter. The ability to switch between on-line and off-line states and to continue the work, uninterrupted - this ability means the integration of the PC in the Internet.

There are two competing views concerning the future of computer hardware and both of them acknowledge the importance of the Internet.

Bill Gates - Microsoft's legendary boss - says that the PC will continue to advance and strengthen its processing and computing powers. The Internet will be just another tool available through telecommunications, rather than through the ownership of hard copies of software and data. The Internet is perceived to be a tremendous external database, available for processing by tomorrow's desktops. This view is lately being gradually reversed in view of the incredible vitality and powers of the Internet.

Gates is converging on the worldview held by Sun Microsystems.

The future desktop will be a terminal, albeit powerful and with considerable processing, computing and communications capabilities. The name of the game will be the Internet itself. The terminal will access Internet databases (containing raw or processed data) and satisfy its information needs.

This terminal - equipped with languages the likes of Java - will get into libraries of software applications. It will make use of components of different applications as the needs arise. When finished using the component, the terminal will "return" it to the virtual "shelf" until the next time it is needed.

This will minimize memory resources in the desktop.

The truth, as always, is probably somewhere in the middle.

Tomorrow's computer will be a home entertainment centre. No consumer will accept total dependence on telecommunications and on the Net. They will all ask for processing and computing powers at their fingertips, a-la Bill Gates.

But tomorrow's computer will also function as a terminal, when needed: when data retrieving or even when using NON standard software applications. Why purchase rarely used, expensive applications - when they are available, for a fraction of the cost, on the Net?

In other words: no consumer will subjugate his frequent word processing needs to the whims of the local phone company, or to those of the site operator. That is why every desktop is still likely to include a hard (or optical)-disk-resident word processing software. But very few will by CAD-CAM, animation, graphics, or publishing software which they are likely to use infrequently. Instead, they will access these applications, which will be resident in the Net, use those parts that are needed. This is usage tailored to the client's needs. This is also the integration of a desktop (not of a terminal) with the Net.

Decentralized Lack of Planning

The course adopted by content creators (producers) in the last few years proves the maxim that it is easy to repeat mistakes and difficult to derive lessons from them. Content producers are constantly buying channels to transfer their contents. This is a mistake. A careful study of the history of successful media (e.g., television) points to a clear pattern:

Content producers do not grant life-long exclusivity to any single channel. Especially not by buying into it. They prefer to contract for a limited time with content providers (their broadcast channels). They work with all of them, sometimes simultaneously.

In the future, the same content will be sold on different sites or networks, at different times. Sometimes it will be found with a provider which is a combination of cable TV company and phone company - at other times, it will be found with a provider with expertise in computer networks. Much content will be created locally and distributed globally - and vice versa. The repackaging of branded contents will be the name of the game in both the media firms and the firms which control contents distribution (=the channels).

No exclusivity pact will survive. Networks such as CompuServe are doomed and have been doomed since 1993. The approach of decentralized access, through numerous channels, to the same information - will prevail.

The Transparent Language

The Internet will become the next battlefield between have countries and have-not countries. It will be a cultural war zone (English against French, Japanese, Chinese, Russian and Spanish). It will be politically charged: those wishing to restrict the freedom of speech (authoritarian and dictatorial regimes, governments, conservative politicians) against pro-speechers. It will become a new arena of warfare and an integral part of actual wars.

Different peer groups, educational and income social-economic strata, ethnic, sexual preference groups - will all fight in the eternal fields of the Internet.

Yet, two developments are likely to pacify the scene:

Automatic translation applications (like Accent and the Alta Vista translation engines) will make every bit of information accessible to all. The lingual (and, by extension ethnic or national) source of the information will be disguised. A feeling of a global village will permeate the medium. Being ignorant of the English language will no longer hinder one's access to the Net. Equal opportunities.

The second trend will be the new classification methods of contents on the Net together with the availability of chips intended to filter offensive information. Obscene material will not be available to tender souls. anti-Semitic sites will be blocked to Jews and communists will be spared Evil Empire speeches. Filtering will be usually done using extensive and adaptable lists of keywords or key phrases.

This will lead to the formation of cultural Internet Ghettos - but it will also considerably reduce tensions and largely derail populist legislative efforts aimed at curbing or censoring free speech.

Public Internet - Private Internet

The day is not far when every user will be able to define his areas of interest, order of priorities, preferences and tastes. Special applications will scour the Net for him and retrieve the material befitting his requirements. This material will be organized in any manner prescribed.

A private newspaper comes to mind. It will have a circulation of one copy - the user's. It will borrow its contents from a few hundreds of databases and electronic versions of newspapers on the Net. Its headlines will reflect the main areas of interest of its sole subscriber. The private paper will contain hyperlinks to other sites in the Internet: to reference material, to additional information on the same subject. It will contain text, but also graphics, audio, video and photographs. It will be interactive and editable with the push of a button.

Another idea: the intelligent archive.

The user will accumulate information, derived from a variety of sources in an archive maintained for him on the Net. It will not be a classical "dead" archive. It will be active. A special application will search the Net daily and update the archive. It will contain hyperlinks to sites, to additional information on the Net and to alternative sources of information. It will have a "History" function which will teach the archive about the preferences and priorities of the user.

The software will recommend new sites to him and subjects similar to his history. It will alert him to movies, TV shows and new musical releases - all within his cultural sphere. If convinced to purchase - the software will order the wares from the Net. It will then let him listen to the music, see the movie, or read the text.

The internet will become a place of unceasing stimuli, of internal order and organization and of friendliness in the sense of personally rewarding acquaintance. Such an archive will be a veritable friend. It will alert the user to interesting news, leave messages and food for thought in his e-mail (or v-mail). It will send the user a fax if not responded to within a reasonable time. It will issue reports every morning.

This, naturally, is only a private case of the archival potential of the Net.

A network connecting more than 16.3 million computers (end 1996) is also the biggest collective memory effort in history after the Library of Alexandria. The Internet possesses the combined power of all its constituents. Search engines are, therefore, bound to be replaced by intelligent archives which will form universal archives, which will store all the paths to the results of searches plus millions of recommended searches.

Compare this to a newspaper: it is much easier to store back issues of a paper in the Internet than physically. Obviously, it is much easier to search and the amortization of such a copy is annulled. Such an archive will let the user search by word, by key phrase, by contents, search the bibliography and hop to other parts of the archive or to other territories in the Internet using hyperlinks.

Money, Again

We have already mentioned SET, the safety standard. This will facilitate credit card transactions over the Net. These are safe transactions even today - but there an ingrained interest to say otherwise. Newspapers are afraid that advertising budgets will migrate to the Web. Television harbours the same fears. More commerce on the Net - means more advertising dollars diverted from established media. Too many feel unhappy when confronted with this inevitability. They spread lies which feed off the ignorance about how safe paying with credit cards on the Net is. Safety standards will terminate this propaganda and transform the Internet into a commercial medium.

Users will be able to buy and sell goods and services on the Net and get them by post. Certain things will be directly downloaded (software, e-books). Many banking transactions and EDI operations will be conducted through bank-clients intranets. All stock and commodity exchanges will be accessible and the role of brokers will be minimized. Foreign exchange will be easily tradable and transferable. Initial Public Offerings of shares, day trading of stocks and other activities traditionally connected with physical ("pit") capital markets will become a predominant feature of the internet. The day is not far that the likes of Merrill Lynch will be offering full services (including advisory services) through the internet. The first steps towards electronic trading of shares (with discounted fees) have already been taken in mid 1999. Home banking, private newspapers, subscriptions to cultural events, tourism packages and airline tickets - are all candidates for Net-Trading.

The Internet is here to stay.

Commercially, it would be an extreme strategic error to ignore it. A lot of money will flow through it. A lot more people will be connected to it. A lot of information will be stored on it.

It is worth being there.

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Appendix - Ethics and the Internet

The "Internet" is a very misleading term. It's like saying "print". Professional articles are "print" - and so are the sleaziest porno brochures.

So, first, I think it would be useful to make a distinction between two broad categories:

Content-related

or

Content-driven and Interaction-driven

Most content driven sites maintain reasonable ethical standards, roughly comparable to the "real" or "non-virtual" media. This is because many of these sites were established by businesses with a "real" dimension to start with (Walt Disney, The Economist, etc.). These sites (at least the institutional ones) maintain standards of privacy, veracity, cross-checking of information, etc.

Personal home pages would be a sub-category of content-driven sites. These cannot be seriously considered "media". They are representatives of the new phenomenon of extreme narrowcasting. They do not adhere to any ethical standards, with the exception of those upheld by their owners'.

The interaction orientated sites and activities can, in turn, be divided to E-commerce sites (such as Amazon) which adhere to commercial law and to commercial ethics and to interactive sites.

The latter - discussion lists, mailing lists and so on - are a hotbed of unethical, verbally aggressive, hostile behaviour. A special vocabulary developed to discuss these phenomena ("flaming", "mail bombing" etc.).

To summarize:

Where the aim is to provide consumers with another venue for the dissemination of information or to sell products or services to them the standards of ethics maintained reflect those upheld outside the realm of the internet. Additionally, codified morals, the commercial law is adhered to.

Where the aim is interaction or the dissemination of the personal opinions and views of site-owners - ethical standards are in the process of becoming. A rough set of guidelines coalesced into the "netiquette". It is a set of rules of peaceful co-existence intended to prevent flame wars and the eruption of interpersonal verbal abuse. Since it lacks effective means of enforcement - it is very often violated and constitutes an expression of goodwill, rather than an obliging code. [Return](#)

The Internet in the Countries in Transition

Though the countries in transition are far from being an homogeneous lot, there are a few denominators common to their Internet experience hitherto:

1. Internet Invasion

The penetration of the Internet in the countries in transition varies from country to country - but is still very low even by European standards, not to mention by American ones. This has to do with the lack of infrastructure, the prohibitive cost of services, an extortionist pricing structure, computer illiteracy and luddism (computer phobia).

Societies in the countries in transition are inert (and most of them, conservative or traditionalist) - following years of central mis-planning. The Internet (and computers) are perceived by many as threatening - mainly because they are part of a technological upheaval which makes people redundant.

2. The Rumour Mill

All manner of instant messaging - mainly the earlier versions of IRC - played an important role in enhancing social cohesion and exchanging uncensored information. As in other parts of the world - the Internet was first used to communicate: IRC, MIRC e-mail and e-mail fora, and SMS (short messages services on mobile phone and other portable devices) were - and to a large extent, are - all the rage.

The IRC was (and is) used mainly to exchange political views and news and to engage in inter-personal interactions. The media in countries in transition is notoriously unreliable. Decades of official indoctrination and propaganda left people reading between (real or imaginary) lines. Rumours and gossip always substituted for news and the Internet was well suited to become a prime channel of dissemination of conspiracy theories, malicious libel, hearsay and eyewitness accounts.

Instant messaging services also led to an increase in the number (though not necessarily in the quality) of interactions between the users - from dating to the provision of services, the Internet was enthusiastically adopted by a generation of alienated youth, isolated from the world by official doctrine and from each other by paranoia fostered by the political regime.

The Internet exposed its users to the west, to other models of existence where trust and collaboration play a major role. It increase the quantity of interaction between them. It fostered a sense of identity and community. The Internet is not ubiquitous in the countries in transition and, therefore, its impact is very limited. It had no discernible effect on how governments work in this region. Even in the USA it is just starting to effect political processes and be integrated in them (for instance, through blogs).

The Internet encouraged entrepreneurship and aspirations of social mobility. Very much like mobile telephony - which allowed the countries in transition to skip massive investments in outdated technologies - the Internet was perceived to be a shortcut to prosperity. Its

decentralized channels of distribution, global penetration, "rags to riches" ethos and dizzying rate of innovation - attracted the young and creative.

Many decided to become software developers and establish a local version of "Silicon Valley" or the flourishing software industry in India. Anti virus software was developed in Russia, web design services in former Yugoslavia, e-media in the Czech Republic and so on. But this is the reserve of a minuscule part of society. E-commerce, for instance, is a long way off (though m-commerce might appear sooner in countries like the Czech Republic or the Baltic).

E-commerce is the natural culmination of a process. You need to have a rich computer infrastructure, a functioning telecommunications network, cheap access to the Internet, computer literacy, inability to postpone gratification, a philosophy of consumerism and, finally, a modicum of trust between the players in the economy.

The countries in transition lack all of the above. Most of them are not even aware that the Internet exists and what it can do for them. Penetration rates, number of computers per household, number of phone lines per household, the reliability of the telecommunications infrastructure and the number of Internet users at home (and at work)- are all dismally low.

On the other hand, the cost of accessing the net is still prohibitively high. It would be a wild exaggeration to call the budding Internet enterprises in the countries in transition - "industries". There are isolated cases of success, that's all. They sprang in response to local demand, expanded internationally on rare occasions and, on the whole remained pretty confined to their locale. There was no agreement between countries and entrepreneurs who will develop what. It was purely haphazard.

3. The Great Equalizer

Very early on, the denizens of the countries in transition have caught on to the "great equalizer" effects of the Net. They used it to vent their frustrations and aggression, to conduct cyber-warfare, to unleash an explosion of visual creativity and to engage in deconstructive discourse.

By great equalizer - I meant equalizer with the rich, developed countries. See the article I quoted above. The citizens of the countries in transition are frustrated by their inability to catch up with the affluence and prosperity of the West. They feel inferior, neglected, looked down upon, dictated to and, in general, put down.

The Internet is perceived as something which can restore the balance. Only, of course, it cannot. It is still a rich people's medium. Former US President, Bill Clinton, pointed out the Digital Divide within America - such a divide exists to a much larger extent and with more venomous effects between the developed and developing world. the Internet has done nothing to bridge this gap - on the contrary: It enhanced the productivity and economic growth (this is known as "The New Economy") of rich countries (mainly the States) and left the have-nots in the dust.

4. Intellectual Property

The concept of intellectual property - foreign to the global Internet culture to start with - became an emblem of Western hegemony and monopolistic practices. Violating copyright, software piracy and hacking became both status symbols and a political declaration of sorts. But the rapid dissemination of programs and information (for instance, illicit copies of reference works) served to level the playing field.

Piracy is quite prevalent in the countries in transition. The countries in transition are the second capital of piracy (after Asia). Software, films, even books - are copied and distributed quite freely and openly. There are street vendors who deal in the counterfeit products - but most of it is sold through stores and OEMs.

I think that intellectual property will go the way the pharmaceutical industry did: Instead of fighting windmills - owners and distributors of intellectual property will join the trend. They are likely to team up with sponsors which will subsidize the price of intellectual property in order to make it affordable to the denizens of poor countries. Such sponsors could be either multi-lateral institutions (such as the World Bank) - or charities and donors.

Interview with Ray Power, main shareholder and General Manager of iDevelop, Macedonia and Chairman of the British Business Group

Conducted by: [Sam Vaknin](#)

1. Can you briefly describe your product, your market niche, and marketing strategy?

RP: In brief, it is a solution that allows companies to monitor their website traffic in real time and initiate chats with those visitors without any downloads etc. Our primary market is the SME (Small to Medium Enterprises) segment and we are finding a lot of success with realtors, travel agencies, hotels and car dealerships.

The marketing strategy is closely linked to the sales strategy which has at its core the subscription billing method. This delivers the software to our customer at a fraction of what it would cost were it packaged or sold as a unit. We have direct sales agents in place in Eastern Europe, the UK and the USA who target medium sized companies and identify resellers; such as web development companies to whom we offer good margins and support thus giving us as wide a spread reach as possible.

2. Why Macedonia? It is not exactly the first locale that pops to mind when hi-tech is mentioned ...

RP: Well, we originally used the country as an offshore IT destination, i.e. for development purposes only. But, with the economic and political developments in the last two years, for example lower taxes. we decided to move all of our operations here. It is favourable in that we know the territory and the people on the ground from the development work but, from a commercial point of view in that it is an emerging market with massive potential and growth capability. With the political and economic landscape looking very positive, from a growth perspective, over the next few years, we anticipate that we will benefit from this directly and indirectly as foreign investments look to the stock exchange as an investment option. So far

as the high-tech element is concerned, granted, Macedonia is better known for its pepper and tomatoes, but, there are some excellent IT minds in the country and this resource is growing all the time. At present, we still have the pick of the best as don't have to compete with the recruitment campaigns of the likes of Oracle and IBM etc. as they don't have a presence here. In fact, none of the big names have any substantial development operations, (such as what they have in Romania, Poland & Bulgaria for instance), in the country making our lives that little bit easier.

3. You are on the verge on an IPO in Macedonia's stock exchange. What would a dot.com issue or flotation do to the local capital markets? Wouldn't it serve to enhance volatility and thus buttress the market's reputation as a substitute casino?

RP: There is always the concern that people do not perform their own due diligence when purchasing shares which is why we have been making quite an effort to put in place robust, two-way communication processes that will allow us to disseminate news about the company activity which, we hope will prevent people from making investments as a gamble, but rather, take a look at what we do, consider our product, our strategy and our performance. On that basis, we hope we can eliminate excessive price fluctuations and establish a steady pattern of growth that reflects the business value.

4. Do people here grasp the exact nature of a dot.com? It is after all, hitherto unheard of here ... As pioneers, what are you doing to educate them and dispel misunderstandings and misrepresentations?

RP: Broadly speaking I think that very few of the people I speak to fully understand the nature of a dot com. I normally find myself elaborating heavily on why a dot com is different than a traditional bricks and mortar business. Often people are very quick to jump on the very high rates of returns that can be achieved with a successful product but sometimes incorrectly conclude that they are looking in a brand new start-up. Indeed, the product is new, exciting and innovative and sure to be a hit, but, the business itself is not a traditional startup in that we have our sales people in place with matured business processes, payment facilities and a product that has completed development and testing and already has paying subscribers. One of the main problems we face is that a lot of people remember the dot com bubble bursting without realizing why that happened and, in fact, how far along the industry has moved since then. There is, for want of a better phrase, a second dot com boom happening at the moment but in a much more subtle and sustainable manner - I think that the people with the ideas have all grown up a little and have realized that services must generate income...you don't see us giving our product away for free! (Smiles)

5. What are the lessons Macedonia should learn from the global dot.com boom and bust in the late 1990s?

RP: I think that I may have started to answer this above...simply, they should take a few minutes to understand the underlying cause for the boom and bust cycle that occurred back then. It was a phenomenon where many business people couldn't understand what the business case was but invested regardless; there seemed to be this innate concept that just because they didn't understand the technology behind the website, they didn't have to understand how the revenue was made. In effect, business people threw aside what they knew about business on the basis that the technology would compensate. In a nutshell, they should

know that you cannot give something away for free and expect revenue from nowhere, it just doesn't add up! They should look at the business as a business and make sure that the product actually does function and that the revenue model is based on real sales with a real management and sales strategy associated to it.

6. *What can the government do to help you and companies like you? What has it done to date and what are its plans? Have you communicated your wishes and expectations to the authorities?*

RP: Wow, that's a long answer! I'll try and be brief. For iDevelop specifically, we know that we will need more programmers and a continually improving IT infrastructure. I think that so far, the initiatives in the universities and the push to establish a Minister for IT have been good steps in the right direction but I think there should be a greater pressure put on the central bank and a focus on the fiscal policy to make the e-banking and trading laws user friendly. At the moment, the laws are in place on a local level but there are so many restrictions in place on how income or sales can be realized it makes the process nigh on prohibitive. If the policy making was considered with a system approach I feel that transactions would flow smoothly and that we would see a faster development of this sector which would benefit us all. It is noteworthy however, to point out that any suggestions we have presented thus far have been well received and dealt with in a very positive manner.

7. *Macedonia is a highly politicized country, as are all polities in transition. How do politics figure into your financing and marketing equation?*

RP: To keep things predictable and sustainable we take our sales forecasts from the markets that are not in transition; i.e. the UK or other Western European countries and the USA. We make an effort on a local level to stay informed of the political road map and take measures to minimize any impact that rapidly changing policy may have. In this case, we are very fortunate to have similar markets to analyze and help with such predictions, which, to be honest, have meant that so far, we don't really have any significant impact from political movements. Bear in mind that we are not moving boxed products across land which also keeps us distanced from issues that some other companies may have with supply chains etc.

8. *Can Macedonia become a hi-tech hub: back-office processing (outsourcing and offshoring), software development, product design, etc.?*

RP: I think the answer to this is yes, to a point. I don't think it can be THE hub, but then I don't think any single country in the FYR region could provide THE hub. It does have excellent scope for back-office processing, support services, and software development for various niche industries but I think that is fair to say that, with a population of less than 1/4 of that of London, it won't have the breadth and depth of knowledge and experience demanded by some companies and industries. Without a doubt though, the extraordinarily high level of very well educated young people is a workforce that is ultra-capable and can respond to many market needs.

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Leapfrogging Transition

Technology and Development in Post-Communist Europe

Also published by United Press International (UPI)

In many countries in transition cellular phones are more ubiquitous than the fixed-line kind. Teledensity is vanishingly low throughout swathes of Central and Eastern Europe (CEE). Broadband and e-commerce are distant rumors (ISDN is available in theory but not so in practice - DSL and ADSL are not available at all). Rare phone lines - especially in urban centers - are still being multiplexed and shared by 4-8 subscribers, greatly reducing both quality and usability. Terrestrial television competes ferociously with satellite TV, though cable penetration is low. Internet access is prohibitively expensive and intermittent. Many technologies rely on network effects (i.e., a critical mass of users). CEE is far from reaching this elusive point.

When communism imploded in 1989, pundits were quick to spot the silver lining. The countries in transition, they said, could now leapfrog whole stages of development by adopting novel technologies and through them the expensive Western research they embody. The East can learn from the West's mistakes and, by avoiding them, achieve a competitive edge.

In his seminal book, "Leapfrogging Development - The Political Economy of Telecommunications Restructuring", J.P. Singh, examined the acceleration of development through the adoption of ready-made, off the shelf, technologies. His melancholy conclusion was that development preferences are the outcomes of an intricate inter-play between sectoral pressure groups and coalitions of interest groups - and not the result of progress ex machina. He distinguished three types of states - catalytic, near-catalytic, and dysfunctional. Though he deals exclusively with Asia and Latin America, his typology is applicable to post-Communist Europe.

I. An Overview

The Central and East European market will double itself (to \$17 billion) by 2003, says IDC. Pyramid Research predicts a \$60 billion communications market by 2005. "Information Society", ICT (Information and Communication Technologies), "leapfrogging", and "better online than in line" are buzzwords and slogans oft-used throughout the region. A horde of NGO's - local and international - collaborate with domestic government and local authorities, with foreign governments, multinationals, and international organizations to make the dream of a digital Europe come true.

Russia pledged to attract \$33 billion in investments in its telecommunications infrastructure and services by the year 2010 (the "Electronic Russia" initiative). The US Commercial Service, in the American Embassy in Moscow, predicts an annual growth rate of the Russian ICT sector of 15-20 percent through 2003. Conferences abound (an important one regarding

municipal collaboration in constructing an information highway is to be held in the Czech Republic on March 26-27).

Even devastated Armenia succeeded to export \$20 million worth of IT goods in 2001 (its IT sector has grown by 30% last year). It hosts branches of Silicon Valley household names such as Credence, HPL, and Virage Logic. More than 4000 professionals are employed in 200 companies. Of 60 software development outfits - 26 were founded with American capital. LEDA, a prominent local IT firm, finances IT programs at the Armenian State Engineering University.

All EU candidates strive to get incorporated in existing European networks (such as ELANET, Telecities, IDA, and ERISA) and new, candidate-only, initiatives (such as eEurope+). The EU has applied its "universal (i.e., also affordable) service" rule to Internet access. EU members adopted a variety of measures to increase Internet awareness and usage. Portugal, for instance, granted individuals with tax incentives coupled with free e-mail accounts and Web hosting services to encourage them to purchase PC's. The Dutch established public computer literacy centers for the disenfranchised (e.g., the unemployed) and provided them with discounted and subsidized hardware and connection time.

In one of its more grandiose moments, the heads of governments of the EU countries have decided in Lisbon (2000) that "each citizen should have access to the Internet and the whole European Union should become computer-literate", in the words of the Czech conference organizers.

This is an ambitious undertaking not only because Europe in general is behind the USA where Internet matters (with the exception of wireless Internet) are concerned - but because the countries which used to be behind the Iron Curtain, now lurch in the Digital Divide.

According to Vasile Baltac from the Information Technology and Communications Association of Romania ("The Balkan and Eastern Europe - Digital Divide or Digital Opportunity"), Romania has invested \$25 per capita in ICT in 1999 (compared to Greece's \$567 and the EU's average of \$1215). There were only 2.5 Internet users per 1000 inhabitants in Romania and Bulgaria - compared to 56.4 in Westward-looking Slovenia.

New technologies are used mostly by the elites in CEE (as pointed out by Zassourski and Vartanova in "Transformation in the Context of Transition") - and perhaps advertently so. Still, Baltac fingers the managerial class as the main obstacle to leapfrogging (i.e., the rapid dissemination and assimilation of advanced technologies). They pay lip service to modernization but feel threatened and repelled by it. On the positive side, Baltac notes the annual yield of qualified professionals (who mostly find work in the West) and the emergence of telework and e-commerce. The technological vacuum makes the CEE countries receptive to state of the art technologies. GSM penetration in Romania surpassed the level of fixed line coverage in 1989. The number of cable TV subscribers in the region is projected to double (to 20 million) by 2005.

But the true picture is often obscured by anecdotal evidence, wishful thinking, phobias (e.g., the West European fear of mass migration from East Europe), lack of reliable statistics, and absence of qualified analysts and investment bankers. Factors like hostile terrain and climate, cross-subsidies, lack of real competition, corruption, red tape, moribund financial systems,

archaic legal ones, dearth of credit card holders, urban-rural gaps, and English language illiteracy - rarely appear in neat, colorful, presentations.

Pyramid Research is bearish on broadband. "Internet access is and will remain for the foreseeable future a predominantly narrowband, dial-up affair, even in the most advanced countries (in Central Europe)". This despite plans by regional operators to offer DSL, FWA (Fixed Wireless Access), cable TV and leased-line broadband access (already offered in the Czech Republic by cable networks) and despite a regulatory welcome in all three CE candidates (Hungary, Poland, and the Czech Republic).

Luckily, mobile telephony - the other pillar of the leapfrogging theory - is getting increasingly concentrated in the hands of fewer operators (though at least 3 per every major market). Pyramid projects that by 2006, 94 percent of Russia's cellular phone market will be in the hands of the five leading providers (compared to 85 percent at the end of 2001). Mobile penetration will increase (to c. 10 percent) and prepaid customers will account for the vast majority of users.

Revenues from cellular networks exceed revenues from fixed line networks in certain markets. SMS is booming. Second and third mobile operator licenses are tendered by all cash strapped governments in the region (though a Polish attempt to sell an UMTS license ended in a fiasco). Poland introduced a wireless local loop service. Macedonia just handed a second mobile operator license to the Greek OTE.

"By the end of 2005, the total number of mobile subscribers in CEE will exceed 50 million (compared to 30 million by end-2001) and mobile Internet accounts will constitute approximately 21 percent of total mobile accounts", projects Pyramid. The Czech Republic will have 78 mobile users per 100 population - and Hungary 66. In a second tier of countries - the likes of Bulgaria, Romania, Ukraine, and Russia - a mobile phone will remain a luxury and a status symbol.

Hitherto domestic operators - from the Greek OTE to the Russian MTS - are becoming regional. Multinationals, such as the British Vodafone and the French Orange - have entered the regional fray. Some CEE markets are as saturated (and customers as savvy and demanding) as many advanced Western European ones. A host of value added services (VAS) is thrust upon the - sometimes reluctant - users, leading naturally to WAP (recently introduced throughout much of CEE), 2.5G, and 3G (wi-fi or wireless Internet) services.

Moreover, Pyramid sees an intriguing opportunity in VoIP (Voice over IP) telephony. It says:

"As the incumbents in the CEE markets continue to dominate long-distance circuit-switched telephony, VoIP offers a unique opportunity for new operators to gain a foothold in this traditional monopolistic stronghold."

Internet Telephony Service Providers (ITSP's) have sprung up all over the region (an Israeli firm is now planning to offer VoIP services in Macedonia, Kosovo, and Albania). Even incumbents have been offering VoIP - as early as 1998 in the Czech Republic. In his keynote address to The Economist CEE Telecommunications Conference, in December 2001, Ofer Gneezy, President and CEO of iBasis (a global ITSP), cited industry analysts projecting VoIP average annual growth rates in CEE of 80 percent through 2006.

This, coupled with a growing number of Internet users and access providers (spurred on by telecoms liberalization and growing incomes), may revolutionize the landscape in the next 5-10 years. Pyramid expects annual Internet adoption growth rates of 40 percent through 2005 (that's 30,000 new users a day!). Internet related revenues will reach \$10 billion by 2005 (five times today's \$1.8 billion - but only one seventh the Internet market in Western Europe).

Internet penetration in Central Europe will reach 15 percent in 2005 (from 4 percent today and 3 percent in Russia) - and 40 percent in Western Europe (compared to 18 percent today). Mobile Internet accounts will constitute one third of the total in CEE - c. 20 million users. Harald Gruber of the European Investment Bank is even more optimistic, saying ("Competition and Innovation: The Diffusion of Telecommunications in CEE", March 2000): "About 20 percent of the population will adopt mobile telecommunications".

II. The Future

Leapfrogging is not a linear function of the ubiquity of hardware and software. Though not a homogeneous lot, some lessons common to all countries in transition are already evident.

Technology is a social phenomenon with social implications. It fosters entrepreneurship and social mobility. By allowing the countries in transition to skip massive investments in outdated technologies - the cellular phone, the Internet, cable TV, and the satellite came to be perceived as shortcuts to prosperity, the generators of the dual ethos of "rags to riches", and "creative destruction" (dizzying, constant, and disruptive innovation). They are the future, a youthful promise, and a landscape of opportunities.

Software developers in CEE countries tried to establish local versions of "Silicon Valley", or the flourishing software industry in India. Russian entrepreneurs developed anti virus software, Yugoslavs offered web design services, electronic media flourished in the Czech Republic and so on. But, as hard reality set in, most of these talents left for Western Europe, the USA, Canada, and Australia - where technology firms snatched them eagerly. Central and Eastern Europe is a major net exporter of engineers, programmers, systems analysts, Web designers, and concepts analysts.

Internet penetration in these countries - even in the most wired - is still very low by European standards, let alone American ones. The trauma of communism left them with decrepit and rarefied infrastructure, a prohibitive, extortionist, and skewed cost structure, computer illiteracy, inefficient competition, insufficient investment capital, and entrenched luddism (e.g., computer phobia). Foreign operators often exacerbate the situation. ArmenTel, the Greek owned monopoly in Armenia, keeps Internet access costs prohibitively high, ignoring court actions by the government and loud complaints by disgruntled customers.

The Center for Democracy and Technology (in its report "Bridging the Digital Divide: Internet Access in Central and Eastern Europe") says that, as contrasted with India (or Malaysia), the countries of the CEE did not invest in computerizing their schools, public libraries, and higher education institutions, or in subsidizing private computer-training colleges.

More crucially and less reversibly, decades of central (mis-)planning rendered the societies of Central and Eastern Europe inert and dependent, apart from their traditional conservatism. Many - especially older mid- and high-level managers and engineers - feel threatened by technology. Technology makes people redundant.

To a few open minded (i.e., foreign owned) firms, computer networking stands for decentralized channels of distribution and marketing as well as potential global penetration. But even there, only a minuscule number of businesses took advantage of e-commerce (though the countries of Central Europe and the Baltic may be the global pioneers of m-commerce due to their wireless networks).

E-commerce is leapfrogging's litmus test because it represents the culmination and confluence of hardware, software, and process engineering. To have e-commerce, a country needs rich computer infrastructure, a functioning telecommunications network, and cheap access to the Internet. Its citizens need to be reasonably computer literate, possess both a consumerist mentality (e.g., inability to postpone gratification), and a modicum of trust between the players in the economy - and hold credit cards.

Alas, the countries in transition lack all of the above to varying degrees. The Economist Intelligence Unit ranked Russia 42nd (out of 60 countries) in its year 2000 "e-readiness survey". Other CEE countries fared little better.

Penetration and coverage rates (the number of computers and phone lines per household), network reliability, and the absolute number of Internet users - are all dismally low. Access fees are prohibitively high. Budding Internet enterprises in the countries in transition are happy exceptions that prove the depressing rule. They usually respond to erratic local demand. Few have expanded internationally. Even fewer engage in research and development.

Technology was supposed to be the great equalizer (with the rich, developed countries). It did not deliver on this promise. Unable to catch up with Western affluence and prosperity, the denizens of CEE are frustrated. They feel inferior, neglected, looked down upon, dictated to, and, in general, put down. New, ever-cheaper, technologies, thought the locals, would surely restore the rightful balance between impoverished East and filthy rich West. But the Internet - and even technologies such as cellular telephony - belong to those who can effectively deploy them (i.e., consumers in developed, infrastructure-rich, countries).

The news get worse.

The Internet is gradually permeated by commercial interests and going wireless. This convergence of content and business interests - means less access to the underprivileged. The digital divide is growing by the day. New technologies have done little to bridge this gap - on the contrary: they enhanced the productivity and economic growth (this is known as "The New Economy") of rich countries (mainly the United States) and left the have-nots in the dust.

The countries in transition also lack the proper legislative and law enforcement infrastructure (backed by the right cultural background). Property rights, contracts, intellectual property - are all new, often indigestible, concepts, emblems of Western hegemony and monopolistic practices. Widespread copyright violation, software piracy, and hacking are both status symbols and political declarations of sorts. Admittedly, the dissemination of illicit intellectual products may have served to level the playing field. But now it is hindering entrepreneurship and holding back development.

After Asia, the countries in transition are the second largest centre of piracy. Software, films, even books - are copied and distributed quite freely and openly. There are street vendors who deal in the counterfeit products - but most of it is sold through stores and OEMs. This despite massive efforts (e.g., in Russia, Bulgaria, Ukraine, and, lately, in Macedonia) by software developers, licensed film libraries, and distributors - to fight these phenomena.

Intellectual property may go the way the pharmaceutical industry has. Content owners and distributors may team up with sponsors (multilateral institutions, private charities and donors). The latter will subsidize intellectual property and, thus, make it affordable to the denizens of poor countries. This is already happening in scholarly publishing.

This is very promising. But it far from leapfrogging development. In hindsight, leapfrogging may have been nothing but another of those intellectual fads whose time has gone before it ever came.

Leapfrogging to Cellular Telephony

Also published by United Press International (UPI)

January 13, 2003

The government of Yugoslavia, usually strapped for cash, has agreed to purchase 29 percent of Telekom Srbija, of which it already owns 51 percent. It will pay the seller, Italia International, close to \$200 million. The Greek telecom, OTE, owns the rest.

On Friday, the Serb privatization minister, Aleksandar Vlahovic, continued to spar in public with a Milosevic-era oligarch, Blagoljub Karic, over his share of Mobtel, Serbia's largest cellular phone operator. The company, announced the minister, will be privatized by tender and Karic's share will be diluted to 30 percent.

Such clashes signal rich pickings.

The mobile phone market is booming throughout central and eastern Europe. According to Baskerville's Global Mobile industry newsletter, annual subscriber growth in countries as rich as Russia and as impoverished as Albania exceeds 100 percent. Belarus is off the charts with

232 percent. Macedonia (82 percent), Ukraine (79 percent), Moldova (86 percent), Lithuania (84 percent) and Bulgaria (79 percent) are not far behind.

Growth rates are positively correlated with the level of penetration. More than four fifths of Slovenes and Czechs have access to a cellphone. Hence the lackadaisical annual increases of 14 and 37 percent respectively. But even these are impressive numbers by west European standards. Annual subscriber growth there is a meager 7 percent.

Penetration, in turn, is a function of the population's purchasing power and the state of the - often decrepit - fixed phone network. Thus, in Serbia, smarting from a decade of war and destitution, both the penetration and the growth rates are dismal, at c. 20 percent.

Russia alone accounts for one of every five subscribers in the region and one third of the overall market growth. According to the Jason & Partners consultancy, the number of mobile phone subscribers in Russia has more than doubled in 2002 to 17.8 million users. AC&M, another telecommunications consulting outfit, pegs the growth at 117-124 percent.

Mobile TeleSystems (MTS) services one third of all users, Vimpelcom more than one quarter and MegaFon about one sixth. But there is a host of much smaller companies nibbling at their heels. Advanced cellular networks - such as under the 2.5G protocol - are expected to take off.

Usage in Russia is still largely confined to metropolitan areas. While the country-wide penetration is c. 12 percent (more than double the 2001 figure) - Moscow's is an impressive 48 percent. St. Petersburg, Russia's second most important metropolis, is not far behind with 33 percent.

Still, as urban markets mature, the regions and provinces represent untapped opportunities. Vimpelcom, backed by Norway's Telenor, paid last month \$26.5 million for Vostok-Zapad Telecom, a company whose sole assets are licenses covering the Urals. This was the operator's third such purchase this year. Earlier, it purchased Extel which covers the Baltic exclave of Kaliningrad and Orensot, another Urals licensee.

Vimpelcom is up against Uralsvyazinform, a Perm-based fixed-line and mobile-phone telecommunications operator in the Urals Federal District. According to Radio Free Europe/Radio Liberty and Prime-TASS, the former has increased its capacity last year by some 265,000 cellular-phone numbers.

But Vimpelcom is undeterred. According to Gazeta.ru, it has announced its expansion to Siberia (Karsnoyarski Krai) to compete head on with two indigenous incumbents, EniseiTelecom and SibChallenge. Vimpelcom's competitors are pursuing a similar strategy: MTS has recently purchased Kuban GSM, the country's fourth largest operator, mainly in its south.

Local initiatives have emerged where cellular phone services failed to transpire. RIA-Novosti recounted how 11 pensioners, the residents of a village in Novgorod Oblast have teamed up to invest in a community mobile phone to be kept by the medic. The fixed line network extended only to the nearest village.

The industry is bound to consolidate as new technologies, developing user expectations and exiting foreign investors - mainly Scandinavian, American and German telecoms - increase the pressure on profit margins. One of the major problems is collecting on consumer credit.

Vedomosti, the Russian business weekly, reported that Vimpelcom was forced to write off \$16 million in non-performing credit last year. Close to 2 percent of its clients are more than 60 days in arrears. Vremya Novosti, another Russian paper, puts the accounts receivable at 15 percent of revenues in Vimpelcom, though only 5 percent at MTS.

The cellular phone market throughout central and eastern Europe is at least as exciting as it is in Russia.

As of Jan 1, Romania's fixed line telecommunications system, Romtelecom, majority owned by the Greek OTE, has lost its monopoly status. In the wake of this long awaited liberalization, more than 700 applications for operating licences have been filed with the Romanian authorities, many of them for both fixed and mobile numbers. Fixed line density is so low, mobile penetration, at 20 percent, so dismal, prices so inflated and service so inefficient - that new operators are bound to make a killing on their investment.

Past liberalizations in central European markets - Poland, the Czech Republic and Hungary - have not been auspicious. Prices rose, the erstwhile monopoly largely retained its position and competition remained muted. But Romania is different. Its liberalization is neither partial, nor hesitant. The process is not encumbered by red tape and political obstruction. Even so, mobile phones are likely to be the big winners as the fixed line infrastructure recovers glacially from decades of neglect.

Bulgaria's GSM operator, MobiTel is on the block, though a deal concluded with an Austrian consortium last year fell through. It is considering an initial public offering next year. Another GSM licensee, GloBul, attracted 330,000 subscribers in its first year of operation and covers 65 percent of the population. The country's first cellphone company, Mobikom, intends to branch into GSM and CDMA, following a recent reallocation of national radio frequencies.

Macedonia's second mobile operator, MTS, owned by the Greek OTE, was involved last year in bitter haggling with Mobimak (owned by Makedonski Telekom), the only incumbent, over its inter-connection price. The telecommunications administration threatened to cut off Mobimak but, finding itself on murky legal ground, refrained from doing so.

The British cellular phone company, Vodafone, has expressed interest in the past in Promonte, Montenegro's mobile outfit.

Mobile phone companies are going multinational. Russia's MTS owns a - much disputed - second license in Belarus. It has pledged, last November, to plough \$60 million into a brand new network. MTS also acquired a majority stake in Ukrainian Mobile Communications (UMC), the country's second largest operator. The Russian behemoth is eyeing Bulgaria and Moldova as well.

Wireless telephony is a prime example of technological leapfrogging. Faced with crumbling fixed line networks, years on waiting lists, frequent interruptions of service and a venal

bureaucracy, subscribers opt to go cellular. Last year, the aggregate duration of mobile phone calls in Croatia leapt by 50 percent. It nudged up by a mere 0.5 percent on wired lines.

New services, such as short messages (SMS) and textual information pages are booming. Romania's operator, Orange, has launched multimedia messaging. Macedonia introduced WAP, a protocol allowing cellphones to receive electronic data including e-mail messages and Web pages. The revenues from such value added offerings will shortly outweigh voice communications in the west. The east is attentive to such lessons.

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The Demise of the Dinosaur PTTs

Telecommunications is the most important physical infrastructure in the modern world. It is more important than roads because it can replace them. It is more important than office buildings because it allows for the formation of virtual offices. It is more crucial than legal and institutional systems because it surpasses national borders and undermines and subverts fossilized political structures.

Telecommunications eliminates distance and allows for the transfer of voice and other forms of information (data) virtually at the speed of light. It is the foundation for the future industries and the industries of the future: information, knowledge and intelligent data processing industries.

Telecommunications today is not limited to handsets, phone lines and telephony equipment. It incorporates computers and other media technologies. All these are an integral part of the new age of telecoms.

Telecommunications was partly responsible to the geopolitical sea changes of the last decade. It is enough to recall the role of satellite telephones in the media coverage of the televised Gulf War - or the anti Ceausescu revolution in Romania.

These are precisely the reasons why regimes all over the world - in other words, politicians - strove to maintain unmitigated control of the PTT services in their countries and to block foreign and domestic competition. National telecommunication service providers and carriers became monopolistic monsters, operating highly inefficiently, charging exorbitant prices, employing far too many people at unreasonably high salaries and serving to boost the political fortunes of ministers and the like.

But all this is changing. The new World Trade Organization (WTO) set of agreements will force governments throughout the world to privatize their telecoms giants and to deregulate this industry. The deadline is 2003 with a few exceptions (Latvia has until 2013 to do so). There is a new realization that telecommunications is too important an industry to be left to the devices of politicians - or to the flawed management of state organs.

A few privatization models have evolved over the last 20 years, or so.

In the more developed countries (the West, South East Asia), some countries have chosen to introduce free for all competition. This entails the sale of part or all of the state owned telecoms provider to shareholders through stock exchanges. A small part is usually also allocated to the workers and management of the company at favourable prices. Concurrently the industry is deregulated and licensing requirements are gradually abolished.

Initially, in this model, only certain services are open to competition, mainly the international calls segment and the mobile and wireless telephony (including paging).

But, ultimately, all types of services are opened to competition - both domestic or foreign.

The most extreme example is Finland, where competition is completely free, no licensing is required and 52 companies compete for the heart (and pocket) of the customers. They are all allowed to offer any kind of telecommunications service imaginable.

Still, very much the same situation is developing in Israel, Britain, Australia, Hong Kong and - with the 1996 Telecommunications Act - in the USA. This 1996 Act allows providers and carriers of international phone calls and of local phone calls (until now separated by regulation) to enter each other markets and compete. The result was a major spate of mergers and acquisitions as companies scrambled to offer combined, international and local, services.

The second alternative is to break up the national carriers into functional units, one dedicated to international calls and the other to local traffic. NTT in Japan is undergoing this surgical restructuring now. In the wake of this break-up, competition is allowed in certain services (again, mainly international calls and GSM and mobile telephony).

The other - less efficient - option is to sell minority stakes in the national carrier to investors (domestic or foreign), or, through the stock exchanges - while effectively preserving the monopoly of state owned provider. This was the case in Israel, until lately and is the case in Greece. In Israel, when the British Cables and wireless tried to gain control of Bezeq (the Israeli phone services provider) - it encountered the staunch opposition of the Israeli government, replete with threats of legal action.

Still, the benefits of privatization are enormous.

Prices drop. That is the most evident and immediately visible effect. The prices charged for international phone calls in Israel dropped by 80% in real terms with the introduction of two additional competitors. In Britain, prices went down by 25%.

There is a leap forward in the quality of service: waiting periods for new installations, second and third phone numbers, business dedicated lines, maintenance, fixing problems, times between faults, troubleshooting, hotlines, meter reading, detailed and allocated accounts and so on. The average wait for a new phone has been reduced in Israel and in Hungary, to take two notable examples, from months to days.

Naturally, overall economic efficiency is improved by cost savings and by more productive allocation of time previously spent on tackling bureaucratic hassles.

Last, but by no means least, is the marked improvement in technology, its upgrading and the introduction of novel, low cost alternatives.

In the less developed and developing countries, privatization has been achieved mainly through the introduction of foreign strategic partners - usually other telecoms firms from more developed countries. This necessitates the temporary preservation of the monopolies. No profit minded foreign investor will invest in infrastructure - and let future competitors reap the benefits. An investor wants to be assured that he will continue to rule the market and overcharge the customers for a proscribed period of time. Foreign investors like monopoly situations because this way they have a captive market and thus they can force their clients to defray their development costs through overcharging. But, this can be seen as the cost of modernization and integration into regional and global telecoms alliances. Once competition

is allowed, everyone (especially the clients) will reap the benefits of modern information highways.

To my mind this thinking is flawed. The direct and indirect damages incurred by monopolies are immeasurable. Monopolies must be dismantled - and the sooner, the better. The transfer of part of a monopoly from domestic to foreign hands does not alter its economically cancerous nature. Monopolies are guilty of over or under optimal investments, of overcharging clients, of distorting the allocation of economic resources, of market rigging, corruption and other criminal activities, of providing poor service, of selecting the wrong technologies. Only the threat of competition - actual and fierce - can change all that. Even so, long after competition is introduced, monopolies seem to continue to control their markets. British Telecom still controls 72% of its markets - despite more than a decade of competition.

Despite these considerations - and due to rampant corruption and cronyism - the Czech Republic, Hungary, Yugoslavia-Serbia, Estonia, Latvia and Russia chose this path. Bulgaria and Romania will follow them next year and it seems that Macedonia might follow suit, more out of lack of choice of alternatives - than out of careful selection of them.

The other way is by selling shares to investors in the stock exchanges - local and foreign. Poland has adopted this path after years of foot-ragging. It will sell shares of its carriers early next year. This, however, is not a solution available to small countries with an undeveloped stock exchange and low liquidity. To float the local PTT in the Macedonian Stock Exchange would be absurd. Even to attract domestic capital in sufficient quantity would be unthinkable.

Some countries avoid privatization altogether. They regard the fix of privatization as a fad, or a passing craze (which, in its more extreme forms, it is). They declare the telecommunications sector to be a matter of national strategic importance (again, to a very limited extent, it is). Slovakia has introduced a law in 1995 to actively prohibit the privatization of its PTT.

But experience disproves the Slovak stance. Admittedly, privatization does have its unpleasant side effects: redundant workers are fired by the thousands and unemployment goes up, for instance. Another result, cutely felt by every potential voter, is the radical increase in the price of local phone calls which used to be subsidized by the outlandish charges imposed on international calls. Once cross - subsidization ceases and more realistic pricing is introduced - prices shoot up.

But the price of all other services drop as sharply and there is a dramatic improvement in the quality and speed of the services provided.

The technological aspect is not to be sneered at, either.

The current infrastructure is insufficient in all Central and East European countries. It is partly incompatible with European Union standards and networks. The existing backbones will, of course, still be used but they will be gradually replaced by fibre optics and digital switchboards.

Technologies like cable TV and broadcasting networks, satellites and above all, wireless and GSM networks will serve to bridge the capacity and compatibility gaps and deficiencies. They

will also reduce the dependence of new market entrants on the infrastructure and services provided by local PTTs - and this is good news.

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The Selfish Net – The Semantic Web

A decade after the invention of the World Wide Web, Tim Berners-Lee is promoting the "Semantic Web". The Internet hitherto is a repository of digital content. It has a rudimentary inventory system and very crude data location services. As a sad result, most of the content is invisible and inaccessible. Moreover, the Internet manipulates strings of symbols, not logical or semantic propositions. In other words, the Net compares values but does not know the meaning of the values it thus manipulates. It is unable to interpret strings, to infer new facts, to deduce, induce, derive, or otherwise comprehend what it is doing. In short, it does not understand language. Run an ambiguous term by any search engine and these shortcomings become painfully evident. This lack of understanding of the semantic foundations of its raw material (data, information) prevent applications and databases from sharing resources and feeding each other. The Internet is discrete, not continuous. It resembles an archipelago, with users hopping from island to island in a frantic search for relevancy.

Even visionaries like Berners-Lee do not contemplate an "intelligent Web". They are simply proposing to let users, content creators, and web developers assign descriptive meta-tags ("name of hotel") to fields, or to strings of symbols ("Hilton"). These meta-tags (arranged in semantic and relational "ontologies" - lists of metatags, their meanings and how they relate to each other) will be read by various applications and allow them to process the associated strings of symbols correctly (place the word "Hilton" in your address book under "hotels"). This will make information retrieval more efficient and reliable and the information retrieved is bound to be more relevant and amenable to higher level processing (statistics, the development of heuristic rules, etc.). The shift is from HTML (whose tags are concerned with visual appearances and content indexing) to languages such as the DARPA Agent Markup Language, OIL (Ontology Inference Layer or Ontology Interchange Language), or even XML (whose tags are concerned with content taxonomy, document structure, and semantics). This would bring the Internet closer to the classic library card catalogue.

Even in its current, pre-semantic, hyperlink-dependent, phase, the Internet brings to mind Richard Dawkins' seminal work "The Selfish Gene" (OUP, 1976). This would be doubly true for the Semantic Web.

Dawkins suggested to generalize the principle of natural selection to a law of the survival of the stable. "A stable thing is a collection of atoms which is permanent enough or common enough to deserve a name". He then proceeded to describe the emergence of "Replicators" - molecules which created copies of themselves. The Replicators that survived in the competition for scarce raw materials were characterized by high longevity, fecundity, and copying-fidelity. Replicators (now known as "genes") constructed "survival machines" (organisms) to shield them from the vagaries of an ever-harsher environment.

This is very reminiscent of the Internet. The "stable things" are HTML coded web pages. They are replicators - they create copies of themselves every time their "web address" (URL) is clicked. The HTML coding of a web page can be thought of as "genetic material". It contains all the information needed to reproduce the page. And, exactly as in nature, the

higher the longevity, fecundity (measured in links to the web page from other web sites), and copying-fidelity of the HTML code - the higher its chances to survive (as a web page).

Replicator molecules (DNA) and replicator HTML have one thing in common - they are both packaged information. In the appropriate context (the right biochemical "soup" in the case of DNA, the right software application in the case of HTML code) - this information generates a "survival machine" (organism, or a web page).

The Semantic Web will only increase the longevity, fecundity, and copying-fidelity of the underlying code (in this case, OIL or XML instead of HTML). By facilitating many more interactions with many other web pages and databases - the underlying "replicator" code will ensure the "survival" of "its" web page (=its survival machine). In this analogy, the web page's "DNA" (its OIL or XML code) contains "single genes" (semantic meta-tags). The whole process of life is the unfolding of a kind of Semantic Web.

In a prophetic paragraph, Dawkins described the Internet:

"The first thing to grasp about a modern replicator is that it is highly gregarious. A survival machine is a vehicle containing not just one gene but many thousands. The manufacture of a body is a cooperative venture of such intricacy that it is almost impossible to disentangle the contribution of one gene from that of another. A given gene will have many different effects on quite different parts of the body. A given part of the body will be influenced by many genes and the effect of any one gene depends on interaction with many others...In terms of the analogy, any given page of the plans makes reference to many different parts of the building; and each page makes sense only in terms of cross-reference to numerous other pages"

What Dawkins neglected in his important work is the concept of the Network. People congregate in cities, mate, and reproduce, thus providing genes with new "survival machines". But Dawkins himself suggested that the new Replicator is the "meme" - an idea, belief, technique, technology, work of art, or bit of information. Memes use human brains as "survival machines" and they hop from brain to brain and across time and space ("communications") in the process of cultural (as distinct from biological) evolution. The Internet is a latter day meme-hopping playground. But, more importantly, it is a Network. Genes move from one container to another through a linear, serial, tedious process which involves prolonged periods of one on one gene shuffling ("sex") and gestation. Memes use networks. Their propagation is, therefore, parallel, fast, and all-pervasive. The Internet is a manifestation of the growing predominance of memes over genes. And the Semantic Web may be to the Internet what Artificial Intelligence is to classic computing. We may be on the threshold of a self-aware Web.

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The Technology of Law, The Law of Technology

***An Epistolary Dialogue Between
Roberto Calvo Macias and [Dr. Sam Vaknin](#)***

"The juvenile sea squirt wanders through the sea searching for a suitable rock or hunk of coral to cling to and make it its home for life. For this task, it has a rudimentary nervous system. When it finds its spot and takes root, it doesn't need its brain anymore, so it eats it. (its rather like getting tenure)."

Daniel Dennet - Quoted in Paul Thagard's Mind - An Introduction to Cognitive Science

"Everything in nature, in the inanimate as well as the animate world, happens according to rules, although we do not always know these rules."

Immanuel Kant, Logic

"The fuzzy principle states that everything is a matter of degree."

Bart Kosko, Fuzzy Thinking: The New Science of Fuzzy Logic

"When one admits that nothing is certain one must, I think, also add that some things are more nearly certain than others."

Bertrand Russell, "Am I an Atheist or an Agnostic?"

"Most of us can learn to live in perfect comfort on higher levels of power. Everyone knows that on any given day there are energies slumbering in him which the incitements of that day do not call forth. Compared with what we ought to be, we are only half awake. It is evident that our organism has stored-up reserves of energy that are ordinarily not called upon - deeper and deeper strata of explosible material, ready for use by anyone who probes so deep. The human individual usually lives far within his limits."

William James

Hi, Sam

Thanks for the info. Those problems reveal the contradictions of legality and the new technologies. In fact, this is a question of "statism and mobility". To resolve this (apparent?) contradiction is a great task for judges and legislators. F.G. Junger studied this matter on "Die Perfektion of Technology" (1939). He said that technicians were going to attack the law, transforming traditional law (with its classic proceedings) into a technological regulation. This is, in my opinion, inevitable. So, it seems to me, that we shall work in that direction. How can technological regulation - as fast as it is - be humanlike? One (possible) solution(?) is the one I have developed in "Chaos AD", which is biased towards the big difference of the speed between the dissemination of financial and other information and the much slower democratic proceedings. My idea (based upon the book "The Economy of Chaos" by Antonio Escotado, 1999) was to reduce this unevenness by speeding democratic transmissions (elections, referenda, legal procedures) while, at the same time, reducing legal complications. But my idea seem to be just that, an idea(1). The problem remains because the law, of its very being, is slow (compared to the speed of light financial movements).

From another angle, we should study not only the legal questions but the real possibilities. It is evident that normal persons will always have legal problems (remember that prisons and madhouses are usually inhabited by the poor). But to the cyber-elites things are quite different for they know the [THE SECRET ART OF POWER](#) of the internet. The problem to an elite of hackers lies not in legal impediments but in divining its proper real name.

As I have said in [Elite](#), hackers, as a techno-vanguard, are not subjected to any moral or legal constraints, for they are out of the boundaries of the law (in time and space). They are like conquerors, the law follows them. This does not mean that they do not have (legal) problems but they are of another kind and of other risks. So, I think we should distinguish in our work between those two kinds of actions (positive and passive).

Before start I would like to make some refinements. As the Law is directly related to language, I shall declare that my knowledge of the Law is practically non-existent. To this understatement, we must add my precarious knowledge of the English language. So, I am in a disadvantaged position. Due to this you should take the heavy part of this dialogue. My position will be confined only to making some intuitive questions. In doing that we could also clear some obscure questions on "The Economics of Law and the laws of Economy" - as if this dialogue were to be an appendix to that large course of economics you have been running on [your website](#) for some years now.

As you can see, I have tied "economics" and law. In my opinion the two are, in civilized cultures, tied inextricably - just like the Romans observed very well. This won't be a problem to our study because economics is, since the 70s, under the complete dominion of technology and its new race of techno-economic engineers and their financial computing.

Its also necessary to delineate some aspects of this subject. It is my contention that historical points of view are not enough to evaluate correctly this "strange world of ours". So, I will use, apart from historical reviews, mythical contexts.

There are some major questions that arise in that terrible "clash" between technology and law. Here are several tracks to take off:

Ethics have been always related to slow motion. Does technology mean the death of morality (to use Nietzsche's terms:-). What kind of justice and laws can be applied in such a fast tempo? There are great problems with official documents and digital formats.

Some good analysis of a space with fast changing laws are: Alice in Wonderland and in a more technologically-orientated way: Wittgenstein's study of the transformations of language.

Another important feature of technology that has a direct relationship to the realm of the law is the cybernetic field (the pennant of this complex world is the book "Cybernetica" by Norbert Wiener), which has the revealing subtitle: "Control in Animals and Humans"). The ever increasing figures of mechanic, electronic and photo-technological controls belongs to "the sign of the times".

The eruption of a enormous amount of lawyers which almost form a new class.

The problems inherent in legislating in the financial realm with its new instruments and techniques which include financial computing, special contracts "over the counter" of great complexity, new theoretical products that appear at great speed (the great problems of the USA administration to control these "volcanic eruptions" of money).

The using of money as Leibniz's universal characteristic (and its consequences: devaluation of all values).

The ever increasing complexity of Laws and their (priest/secret) arcane languages which open an abyss between the normal person and the "initiated".

Well, I think it is enough for a start. Your turn.

best regards
roberto

Dear RCM,

No amount of self-deprecation will suffice to hide the fact that you are an original thinker. One does not to be a lawyer to discuss the law, the way one has to be a quantum physicist to discuss string theory. The law has one thing in common with technology: it is all-pervasive, it permeates every minutest aspect of our existence, it is the embodiment of (social and economic) philosophies and it evolves constantly (though, as you say, less speedily than technology does).

Before I explore to your various points (probably in my next letter, not to render this one too long) - let me be the nitpicker and set up the framework for our intellectual Christmas adventure.

One can discern the following relationships between the Law and Technology:

1. Sometimes technology becomes an inseparable part of the law. In extreme cases, technology itself becomes the law. The use of polygraphs, faxes, telephones, video, audio and computers is an integral part of many laws - etched into them. It is not an artificial co-habitation: the technology is precisely defined in the law and forms a CONDITION within it. In other words: the very spirit and letter of the law is violated (the law is broken) if a certain technology is not employed or not put to correct use. Think about police laboratories, about the O.J. Simpson case, the importance of DNA prints in everything from determining fatherhood to exposing murderers. Think about the admissibility of polygraph tests in a few countries. Think about the polling of members of boards of directors by phone or fax (explicitly required by law in many countries). Think about assisted suicide by administering painkillers (medicines are by far the most sizeable technology in terms of money). Think about security screening by using advances technology (retina imprints, voice recognition). In all these cases, the use of a specific, well defined, technology is not arbitrarily left to the judgement of law enforcement agents and courts. It is not a set of options, a menu to choose from. It is an INTEGRAL, crucial part of the law and, in many instances, it IS the law itself.

2. Technology itself contains embedded laws of all kinds. Consider internet protocols. These are laws which form part and parcel of the process of decentralized data exchange so central to the internet. Even the language used by the technicians implies the legal origin of these protocols: "handshake", "negotiating", "protocol", "agreement" are all legal terms. Standards, protocols, behavioural codes - whether voluntarily adopted or not - are all form of Law. Thus, internet addresses are allocated by a central authority. Netiquette is enforced universally. Special chips and software prevent render certain content inaccessible. The scientific method (a codex) is part of every technological advance. Microchips incorporate in silicone agreements regarding standards. The law becomes a part of the technology and can be deduced simply by studying it in a process known as "reverse engineering". In stating this, I am making a distinction between *lex naturalis* and *lex populi*. All technologies obey the laws of nature - but we, in this discussion, I believe, wish to discuss only the laws of Man.

3. Technology spurs on the law, spawns it, as it were, gives it birth. The reverse process (technology invented to accommodate a law or to facilitate its implementation) is more rare. There are numerous examples. The invention of modern cryptography led to the formation of a host of governmental institutions and to the passing of numerous relevant laws. More recently, microchips which censor certain web content led to proposed legislation (to forcibly embed them in all computing appliances). Sophisticated eavesdropping, wiring and tapping technologies led to laws regulating these activities. Distance learning is transforming the laws of accreditation of academic institutions. Air transport forced health authorities all over the world to revamp their quarantine and epidemiological policies (not to mention the laws related to air travel and aviation). The list is interminable.

Once a law is enacted - which reflects the state of the art technology - the roles are reversed and the law gives a boost to technology. Seat belts and airbags were invented first. The law making seat belts (and, in some countries, airbags) mandatory came (much) later. But once the law was enacted, it fostered the formation of whole industries and technological improvements. The Law, it would seem, legitimizes technologies, transforms them into "mainstream" and, thus, into legitimate and immediate concerns of capitalism and capitalists (big business). Again, the list is dizzying: antibiotics, rocket technology, the internet itself (first developed by the Pentagon), telecommunications, medical computerized scanning - and numerous other technologies - came into real, widespread being following an interaction with the law. I am using the term "interaction" judiciously because there are four types of such encounters between technology and the law:

- a. A positive law which follows a technological advance (a law regarding seat belts after seat belts were invented). Such positive laws are intended either to disseminate the technology or to stifle it.
- b. An intentional legal lacuna intended to encourage a certain technology (for instance, very little legislation pertains to the internet with the express aim of "letting it be"). Deregulation of the airlines industries is another example.
- c. Structural interventions of the law (or law enforcement authorities) in a technology or its implementation. The best examples are the breaking up of AT&T in 1984 and the current anti-trust case against Microsoft. Such structural transformations of monopolists release hitherto monopolized information (for instance, the source codes of software) to the public and increases competition - the mother of invention.

- d. The conscious encouragement, by law, of technological research (research and development). This can be done directly through government grants and consortia, Japan's MITI being the finest example of this approach. It can also be done indirectly - for instance, by freeing up the capital and labour markets which often leads to the formation of risk or venture capital invested in new technologies. The USA is the most prominent (and, now, emulated) example of this path.

4. A Law that cannot be made known to the citizenry or that cannot be effectively enforced is a "dead letter" - not a law in the vitalist, dynamic sense of the word. For instance, the Laws of Hammurabi (his codex) are still available (through the internet) to all. Yet, do we consider them to be THE or even A Law? We do not and this is because Hammurabi's codex is both unknown to the citizenry and inapplicable. Hammurabi's Laws are inapplicable not because they are anachronistic. Islamic law is as anachronistic as Hammurabi's code - yet it IS applicable and applied in many countries. Applicability is the result of ENFORCEMENT. Laws are manifestations of asymmetries of power between the state and its subjects. Laws are the enshrining of violence applied for the "common good" (whatever that is - it is a shifting, relative concept).

Technology plays an indispensable role in both the dissemination of information and in enforcement efforts. In other words, technology helps teach the citizens what are the laws and how are they likely to be applied (for instance, through the courts, their decisions and precedents). More importantly, technology enhances the efficacy of law enforcement and, thus, renders the law applicable. Police cars, court tape recorders, DNA imprints, fingerprinting, phone tapping, electronic surveillance, satellites - are all instruments of more effective law enforcement. In a broader sense, ALL technology is at the disposal of this or that law. Take defibrillators. They are used to resuscitate patients suffering from severe cardiac arrhythmia's. But such resuscitation is MANDATORY by LAW. So, the defibrillator - a technological medical instrument - is, in a way, a law enforcement device.

But, all the above are superficial - phenomenological - observation (though empirical and pertinent). There is a much more profound affinity between technology and the Law. Technology is the material embodiment of the Laws of Nature and the Laws of Man (mainly the former). The very structure and dynamics of technology are identical to the structure and dynamics of the law - because they are one and the same. The Law is abstract - technology is corporeal. This, to my mind, is absolutely the only difference. Otherwise, Law and Technology are manifestation of the same underlying principles. To qualify as a "Law" (embedded in external hardware - technology - or in internal hardware - the brain), it must be:

- a. **All-inclusive (anamnetic)** – It must encompass, integrate and incorporate all the facts known about the subject.
- b. **Coherent** – It must be chronological, structured and causal.
- c. **Consistent** – Self-consistent (its parts cannot contradict one another or go against the grain of the main raison d'être) and consistent with the observed phenomena (both those related to the subject and those pertaining to the rest of the universe).

- d. **Logically compatible** – It must not violate the laws of logic both internally (the structure and process must abide by some internally imposed logic) and externally (the Aristotelian logic which is applicable to the observable world).
- e. **Insightful** – It must inspire a sense of awe and astonishment which is the result of seeing something familiar in a new light or the result of seeing a pattern emerging out of a big body of data. The insights must be the logical conclusion of the logic, the language and of the development of the subject. I know that we will have heated debate about this one. But, please, stop to think for a minute about the reactions of people to new technology or to new laws (and to the temples of these twin religions - the scientist's laboratory and the courts). They are awed, amazed, fascinated, stunned or incredulous.
- f. **Aesthetic** – The structure of the law and the processes embedded in it must be both plausible and "right", beautiful, not cumbersome, not awkward, not discontinuous, smooth and so on.
- g. **Parsimonious** – The structure and process must employ the minimum number of assumptions and entities in order to satisfy all the above conditions.
- h. **Explanatory** – The Law or technology must explain or incorporate the behaviour of other entities, knowledge, processes in the subject, the user's or citizen's decisions and behaviour and an history (why events developed the way that they did). Many technologies incorporate their own history. For instance: the distance between two rails in a modern railroad is identical to the width of Roman roads (equal to the backside of two horses).
- i. **Predictive (prognostic)** – The law or technology must possess the ability to predict future events, the future behaviour of entities and other inner or even emotional and cognitive dynamics.
- j. **Transforming** – With the power to induce change (whether it is for the better, is a matter of contemporary value judgements and fashions).
- k. **Imposing** – The law or technology must be regarded by the citizen or user as the preferable organizing principle some of his life's events and as a guiding principle.
- l. **Elastic** – The law or the technology must possess the intrinsic abilities to self organize, reorganize, give room to emerging order, accommodate new data comfortably, avoid rigidity in its modes of reaction to attacks from within and from without.

Scientific theories should satisfy most of the same conditions because their subject matter is Laws (the laws of nature). The important elements of testability, verifiability, refutability, falsifiability, and repeatability – should all be upheld by technology.

But here is the first important difference between Law and technology. The former cannot be falsified, in the Popperian sense.

There are four reasons to account for this shortcoming:

1. ***Ethical*** – Experiments would have to be conducted, involving humans. To achieve the necessary result, the subjects will have to be ignorant of the reasons for the experiments and their aims. Sometimes even the very performance of an experiment will have to remain a secret (double blind experiments). Some experiments may involve unpleasant experiences. This is ethically unacceptable.
2. ***The Psychological Uncertainty Principle*** – The current position of a human subject can be fully known. But both treatment and experimentation influence the subject and void this knowledge. The very processes of measurement and observation influence the subject and change him.
3. ***Uniqueness*** – Psychological experiments are, therefore, bound to be unique, unrepeatable, cannot be replicated elsewhere and at other times even if they deal with the SAME subjects. The subjects are never the same due to the psychological uncertainty principle. Repeating the experiments with other subjects adversely affects the scientific value of the results.
4. ***The undergeneration of testable hypotheses*** – Laws deal with humans and with their psyches. Psychology does not generate a sufficient number of hypotheses, which can be subjected to scientific testing. This has to do with the fabulous (=storytelling) nature of psychology. In a way, psychology has affinity with some private languages. It is a form of art and, as such, is self-sufficient. If structural, internal constraints and requirements are met – a statement is deemed true even if it does not satisfy external scientific requirements.

Thus, I am forced to conclude that technology is the embodiment of the laws of nature in a rigorous manner subjected to the scientific method - while the law is the abstract construct of the laws of human and social psychology which cannot be tested scientifically. While the Law and technology are structurally and functionally similar and have many things in common (see the list above) - they diverge when it comes to the formation of hypotheses and their falsifiability.

Ciao,
Sam

Hi, Sam

Fortunately recovered from my technological injuries (computer's malaise) and its blind laws and we can go on with our dialogue.

By the way, I have to say that interactive work is one of the best achievements of technology. Your exposition of "the quasi-identity of law and technology" cleared a blind spot in my vision. I was so focused on the contradictions that I couldn't see the similarities. And so it is. This is evident in warfare, for instance, where each new weapon (the Huns' step and powder are great examples) induces new rules of war (where is the Clausewitz of the nuclear chessboard?!:-))).

Indeed, your comparison takes us to higher considerations. If we adopt some of your conclusions, we can assert, conversely, that the "new rulers" are the technicians (confirming F.G. Jünger's prognosis). For if technology is law then its technicians are the legislators. This, then, is a great change of even greater consequences. Let us remember that philosophers have been the legislators in later centuries (laws were founded on philosophical principles). Another question, that I will explore deeply in the next letters is: who is the technician and which are his thoughts?

Setting aside this strange hypothesis, lets us see what is actually happening. Whether they have a pessimistic approach or an optimistic one, it seems that thinkers agree on the fact that technology has been the buzzword of the century. An all-encompassing wave that permeates all, even thought. The whole surface of the earth has been covered with a technological mantle, and not only the earth but the universe, the cosmos, is being cloaked by machines.

These machines and their technology abruptly altered the human atmosphere and its "tempo". The point of view is no longer human, or terrestrial but rather a cosmic one. Video technologies and real time interactions change, as McLuhan brilliantly observed 30 years ago, not only traditional law but its (habitual? last 2500+ years?) enclosing frame: the alphabetic language. This is precisely what most thinkers and intellectuals fail to see - while continuing to debate old things within the old frame. To affirm the identity of law and technology is indeed to erase the law - the law as we know it, in the historical sense - to return to tribal (mythical) law. Apparently, there is a contradiction between the ever increasing complexity of post-modern laws and this "tribalizing" effect but there is no discord between the two. The flow of language (hypertexts) means the flowing of the law - it reminds one of a pre-Socratic tribe studying "physis" in search of new myths to explain a constantly changing nature, to discover, with emotion and delight, forms, attractors emerging from that chaotic madness.

The distinctive mark of this law, the law of this great tribe, is the intensive use of images (and its numerical control and its purified hyper-rational/scientific method: statistical mechanics). The avalanche of video technologies, filming methods, digital processing, all this "new imagery" can be summarized in what Nobert Wiener once said:

"In Newton's times automatism was a clock-machinery with music and rigid statuettes spinning up over the lid. In the XIXth century the automaton is the glorified steam motor, that burns combustible fuel instead the glycogen of human muscles. The contemporary automaton opens doors with photoelectric cells, points nuclear weapons or solves differential equations."

This "wave of imagery" converts the law into a cybernetic process. It is also interesting to note, as I said in my previous letter, that "Cybernetics" (derived from a greek word: kybernetes: "pilots", steersmen), which can be fairly considered as the beast's mother, has for its subtitle the sentence "Control and communication in the Animal and the Machine". These controls are based on the real-time evaluation and comparison of photographic impressions, quanta of light (and information) measured by digital processes (mostly based on vision and less on sound and other sensa). It changes dramatically not only the traditional law but also the space such law works in, and finally leads not only to a return of the acoustic, tribal word but also to something else: a new grammar that should be better called PHOTOGRAMMAR. The further consequences of this change are not yet observable, but for those of our readers which still possess a consciousness of higher spiritual and poetic orders I would like to note a relationship: the predominance of vision is the nature of predators and birds of prey.

"Cybernetics" and the rest of Wiener's works provide us with the "original" documents (with the "Roseta Stone") of the new law of the new land. N. Wiener is without a doubt one of the most brilliant and powerful scientists and mathematicians of the XX century. Apart from his great contributions to mathematics, computing and other fields, the minor fact that he was deeply interested in Goethe's "The Wizard's Apprentice" (and the answers he came up with) demonstrates the profundity of his thought. We are faced with a serious, first class, thinker. At the centre of Cybernetics is one, at first view, simple mechanism: the feedback loop. In fact, this mechanism was known as early as the XVIII century. Watts' steam engine used a centrifugal regulator based on feedback. Also it has its roots in Hegel's and Fichte's (dialectic) thought and its refined version by the (hallucinatory) mathematical mind of C.S.Pierce. This mechanism is at the heart of all new systems of control and, by extension, of the new social organizations. It is what fashionable intellectuals (Giddens) call "reflexivity" and others "government at distance" or "tele-government" - as per the consumer's taste:-)

On a prosaic level this means a new way (law) of organization, a life in constant movement, changing, reflecting, adapting to new situations always at increasing complexity. On a superior level, if we want to provide an exact and complete "figure", a grammatically well defined prototype, the cybernetic revolution means entering a magical space, much alike that of Alice in Wonderland where laws appear and disappear from fantasy.

Especially interesting (and fascinating and striking) are Wiener's opinions on the "law of the laws", that is to say, the auto-propagation (and self-learning) of machines. Wiener's writings on these matters provide us with a map of the technological future. But that is another tale altogether:-)

The end of my loop.

Time for your feedback:-)

best regards
roberto

My dear RCM,

It is always such a gift to receive your letters. They provoke in me uncontrollable floods of thoughts which I can rarely capture by putting pen to paper (yes, I blush in admitting to such retro devices...;o(((

Mankind is coming back a full circle - from ideograms through alphabet to ideograms. Consider computers. They started as pure alphabet beasts. I recall my programming days with ASSEMBLY, COBOL and PL/1 on a clunky IBM 360 and later, IBM 370. We used Hollerith punch cards. It was all very abstract and symbol-laden. The user interface was highly formal and the formalism was highly mathematical. Computers were a three-dimensional extension of formal logic which is the set of RULES that govern mathematics.

Then came the Macintosh and its emulation, the windows GUI (Graphics User Interface). I remember geeks and hackers sneering at the infantilism and amateurism of it all. Taming your computer by lashing DOS commands at it was still the thing to do. But, gradually, we were all

converted. Today, the elite controls both the alphabet (machine and high level programming languages) and the ideograms (GUIs) - the masses have access only to the ideograms. But it seems that the more widespread the use of the ideograms (graphic interface operating systems and applications), the "wiser" (self-learning, self-diagnosing, self-correcting) they become - the less needed, indeed, the more obsolete the elite is. Finally, it will all be ideograms, the "alphabet" buried under hundreds of layers of graphics and imagery and accessible only to the machine itself.

It is then that we should begin to lose sleep. It is when ONLY the machine has access to its alphabet that we, humans, will find ourselves at the mercy of technology. Having access to one's alphabet is possessing self-consciousness and intelligence (in the Turing sense). Don't misunderstand me: self-awareness and intelligence can be perfectly mediated through images. But access to an alphabet and to the RULES of its meaningful manipulation is indispensable to survival, at least to the survival of intelligence. By "meaningful" I mean: generating a useful and immediately applicable representation of the world, of ourselves and of our knowledge about the world, ourselves and our interactions with the world. When no longer capable of generating such meaningful representations (because technology has hidden our alphabet - the RULES - from our sight) - that day, technology, philosophy and law-making will be one and the same and humans will have no place in such a world - at least, they will have no MEANINGFUL place in it.

It is false that science generates technology - the reverse has always been true. All the big and important technological advances, the Promethean breakthroughs - were achieved by ENGINEERS and technicians, not by scientists. Engineers manipulate the world - scientists manipulate rules, the laws of nature. What computers did is MERGE this two activities and make them indistinguishable. Writing a new software application is both composing rules and engaging in technology. This is because the substance upon which technological innovation is exercised is no longer MATERIAL. Both technology and laws deal with INFORMATION now. This is the convergence of the real and the abstract, the Platonic ideal and its inferior shadow, matter and energy. It is no less revolutionary than $E=MC^2$.

So, technology leads science. Both technology and science start with images. Kekula dreamt the structure of the Benzen molecule, Einstein envisioned the geometry of space and so on. But, in the past, technology ended up generating objects - while science ended up generating rules and embedding them or expressing them in formalisms. The big revolution of the second half of this passing century is that now both science and cutting age technology produce the same: rules, formalisms, abstract entities. In other words: information and its manipulation - RULES - have become the main product of modern society. Some of the output is hard to classify as rules. Is a television show a rule or a set of rules? The deconstructivists will say: definitely so and I will second that. a television show, a software application, a court procedure, a text - are all repositories and depositories of rules, thousands of them: social rules, cultural rules, physical laws of nature, narratives and codes and myriad other guidelines.

This leads us to cybernetics.

At first - during the 50s and 60s - an artificial distinction was drawn between cybernetic systems (such as biological ones) and programmable computers (or universal Turing machines). The former were considered limited by the rigidity of the repertoire of their responses to their feedback loops. Computers, on the other hand, were considered infinitely

flexible by virtue of their programmability. This view was shattered by the unexpected enormous complexity of biological organisms and even automata. Gradually, cybernetics was subsumed under computing (rather, vice versa) and computers were considered to be a class of cybernetic systems. I recommend to you to read "Cybernetics and the Philosophy of Mind" by Sayre published in London in 1976).

They all contain information stored, a set of rules to regulate behaviour and feedback loops. Yet, few people - if any - noticed how politically subversive this model was. If the "center's" behaviour is potentially profoundly alterable by feedback from the "periphery" - then centre and periphery become equipotent. More accurately, the very notions of centre and periphery disintegrate and are replaced by a decentralized, loosely interacting system of information processing and information storage "nodes". The Internet, to regurgitate the obvious, is an example of such a decentralized system. The simultaneous emergence of mathematical theories (fractals, recursiveness) that de-emphasized centrality helped to give birth to the inevitably necessary formalism - the language of networks (neural, computers, social and other).

Decentralization removes the power of law-making from any particular node in the system. Each node is a law unto itself. The system, as a whole, as long as it wishes to remain a system and continue to function as such, reaches a "legislative equilibrium". It is a Prigogine type thermodynamic trajectory: it is dynamic, unstable, ever-changing, fluctuating but, by and large, it is identity-preserving and it is functional. The new systems are systems of INFORMAL law as opposed to the older systems which are mainly and mostly systems of FORMAL law.

The clash between these two models was and is unavoidable. The internet, for instance, regulates itself imposing a set of unwritten rules vaguely called the "Netiquette". Part mores and part habits, it is amorphous and always debatable. Yet it functions much better than drug-related laws in formal law systems (like modern states). With no effective enforcement mechanisms, no netiquette-enforcement agencies to speak of - the netiquette maintains an iron grip over netizens. There are other examples outside the internet: the self regulating financial industry in Britain has a better record of compliance than the heavily regulated, SEC-threatened financial community in the USA. Efforts to tax the Internet and to regulate the City are examples of turf wars between formal law systems and informal law systems.

Informal law system will win, there is no question in mind. Not only because they constitute a better organizational model but because they are more adept at processing the raw material of the next millennium, information. Thus, they are better positioned to guarantee the survival of our race.

But there is a price to pay and it is the ever growing fuzziness of our laws. The more complex the world, the more demanding the raw material, the more probabilistic the output - the fuzzier the logic, the less determinate the answers.

This is what I would like to explore in this dialogue - the death of the LAW as humanity knew it hitherto and its replacement by ever-fuzzier, ever less certain technology.

I will start by studying two celebrated occurrences of technology:

Asimov robots and programmable computers (universal Turing machines, to be precise).

Consider [Asimov's robots](#):

Sigmund Freud said that we have an uncanny reaction to the inanimate. This is probably because we know that – despite pretensions and layers of philosophizing – we are nothing but recursive, self aware, introspective, conscious machines. Special machines, no doubt, but machines althesame.

The series of James bond movies constitutes a decades-spanning gallery of human paranoia. Villains change: communists, neo-Nazis, media moguls. But one kind of villain is a fixture in this psychodrama, in this parade of human phobias: the machine. James Bond always finds himself confronted with hideous, vicious, malicious machines and automata.

It was precisely to counter this wave of unease, even terror, irrational but all-pervasive, that Isaac Asimov, the late Sci-fi writer (and scientist) invented the Three Laws of Robotics:

1. A robot may not injure a human being or, through inaction, allow a human being to come to harm;
2. A robot must obey the orders given it by human beings, except where such orders would conflict with the First Law;
3. A robot must protect its own existence as long as such protection does not conflict with the First or Second Laws.

Many have noticed the lack of consistency and the virtual inapplicability of these laws put together. First, they are not the derivative of any coherent worldview and background. To be properly implemented and to avoid a potentially dangerous interpretation of them – the robots in which they are embedded must be also equipped with a reasonably full model of the physical and of the human spheres of existence. Devoid of such a context, these laws soon lead to intractable paradoxes (experiences as a nervous breakdown by one of Asimov's robots). Conflicts are ruinous in automata based on recursive functions (Turing machines) as all robots must be. Godel pointed at one such self destructive paradox in the "Principia Mathematica" ostensibly comprehensive and self consistent logical system. It was enough to discredit the whole magnificent edifice constructed by Russel and Whitehead over a decade.

Some will argue against this and say that robots need not be automata in the classical, Church-Turing, sense. That they could act according to heuristic, probabilistic rules of decision making. There are many other types of functions (non-recursive) that can be incorporated in a robot. True, but then, how can one guarantee full predictability of behaviour? How can one be certain that the robots will fully and always implement the three laws? Only recursive systems are predictable in principle (their complexity makes even this sometimes not feasible).

An immediate question springs to mind: HOW will a robot identify a human being? Surely, in an age of perfect androids, constructed of organic materials, no superficial, outer scanning will suffice. Structure and composition will not be sufficient factors of differentiation. There are two possibilities to settle this very practical issue: one is to endow the robot with the ability to conduct a Converse Turing Test, the other is to somehow "bar-code" all the robots by implanting some signalling device inside them. Both present additional difficulties.

In the second case, the robot will never be able to positively identify a human being. He will surely identify robots. This is ignoring, for discussion's sake, defects in manufacturing or loss of the implanted identification tag – if the robot will get rid of the tag, presumably this will fall under the "defect in manufacturing" category. But the robot will be forced to make a binary selection: one type of physical entities will be classified as robots – all the others will be grouped into "non-robots". Will non-robots include monkeys and parrots? Yes, unless the manufacturers equip the robots with digital or optical or molecular equivalent of the human image in varying positions (standing, sitting, lying down). But this is a cumbersome solution and not a very effective one: there will always be the odd position which the robot will find hard to locate in its library. A human disk thrower or swimmer may easily be passed over as "non-human" by a robot. So will certain types of amputated invalids.

The first solution is even more seriously flawed. It is possible to design a test which the robot will apply to distinguish a robot from a human. But it will have to be non-intrusive and devoid of communication or with very limited communication. The alternative is a prolonged teletype session behind a curtain, after which the robot will issue its verdict: the respondent is a human or a robot. This is ridiculous. Moreover, the application of such a test will make the robot human in most of the important respects. A human knows other humans for what they are because he is human. A robot will have to be human to recognize another, it takes one to know one, the saying (rightly) goes.

Let us assume that by some miraculous way the problem will be overcome and robots will unfailingly identify humans. The next question pertains to the notion of "injury" (still in the First Law). Is it limited only to a physical injury (the disturbance of the physical continuity of human tissues or of the normal functioning of the human body)? Should it encompass the no less serious mental, verbal and social injuries (after all, they are all known to have physical side effects which are, at times, no less severe than direct physical "injuries"). Is an insult an injury? What about being grossly impolite, or psychologically abusing or tormenting someone? Or offending religious sensitivities, being politically incorrect? The bulk of human (and, therefore, inhuman) actions actually offend a human being, has the potential to do so or seem to be doing so. Take surgery, driving a car, or investing all your money in the stock exchange – they might end in coma, accident, or a stock exchange crash respectively. Should a robot refuse to obey human instructions which embody a potential to injure said instruction-givers? Take a mountain climber – should a robot refuse to hand him his equipment lest he falls off the mountain in an unsuccessful bid to reach the peak? Should a robot abstain from obeying human commands pertaining to crossing busy roads or driving sports cars? Which level of risk should trigger the refusal program? In which stage of a collaboration should it be activated? Should a robot refuse to bring a stool to a person who intends to commit suicide by hanging himself (that's an easy one), should he ignore an instruction to push someone jump off a cliff (definitely), climb the cliff (less assuredly so), get to the cliff (maybe so), get to his car in order to drive to the cliff in case he is an invalid – where does the responsibility and obeisance buck stop?

Whatever the answer, one thing is clear: such a robot must be equipped with more than a rudimentary sense of judgement, with the ability to appraise and analyse complex situations, to predict the future and to base his decisions on very fuzzy algorithms (no programmer can foresee all possible circumstances). To me, this sounds much more dangerous than any recursive automaton which will NOT include the famous Three Laws.

Moreover, what, exactly, constitutes "inaction"? How can we set apart inaction from failed action or, worse, from an action which failed by design, intentionally? If a human is in danger and the robot tried to save him and failed – how will we be able to determine to what extent it exerted itself and did everything that it could do?

How much of the responsibility for the inaction or partial action or failed action should be attributed to the manufacturer – and how much imputed to the robot itself? When a robot decides finally to ignore its own programming – how will we be informed of this momentous event? Outside appearances should hardly be expected to help us distinguish a rebellious robot from a lackadaisical one.

The situation gets much more complicated when we consider conflict states. Imagine that a robot has to hurt one human in order to prevent him from hurting another. The Laws are absolutely inadequate in this case. The robot should either establish an empirical hierarchy of injuries – or an empirical hierarchy of humans. Should we, as humans, rely on robots or on their manufacturers (however wise and intelligent) to make this selection for us? Should abide by their judgement – which injury is more serious than the other and warrants their intervention?

A summary of the Asimov Laws would give us the following "truth table":

A robot must obey human orders with the following two exceptions:

- a. That obeying them will cause injury to a human through an action, or
- b. That obeying them will let a human be injured.

A robot must protect its own existence with three exceptions:

- a. That such protection will be injurious to a human;
- b. That such protection entails inaction in the face of potential injury to a human;
- c. That such protection will bring about insubordination (not obeying human instructions).

Here is an exercise: create a truth table based on these conditions. There is no better way to demonstrate the problematic nature of Asimov's idealized yet highly impractical world.

Or consider [Turing's universal computers \(machines\)](#):

In 1936 an American (Alonzo Church) and a Briton (Alan M. Turing) published independently (as is often the coincidence in science) the basics of a new branch in Mathematics (and logic): computability or recursive functions (later to be developed into Automata Theory).

The authors confined themselves to dealing with computations which involved "effective" or "mechanical" methods for finding results (which could also be expressed as solutions (values) to formulae). These methods were so called because they could, in principle, be performed by simple machines (or human-computers or human-calculators, to use Turing's unfortunate phrases). The emphasis was on finiteness: a finite number of instructions, a finite number of symbols in each instruction, a finite number of steps to the result. This is why these methods

were usable by humans without the aid of an apparatus (with the exception of pencil and paper as memory aids). Moreover: no insight or ingenuity were allowed to "interfere" or to be part of the solution seeking process.

What Church and Turing did was to construct a set of all the functions whose values could be obtained by applying effective or mechanical calculation methods. Turing went further down Church's road and designed the "Turing Machine" – a machine which can calculate the values of all the functions whose values can be found using effective or mechanical methods. Thus, the program running the TM (=Turing Machine in the rest of this text) was really an effective or mechanical method. For the initiated readers: Church solved the decision-problem for propositional calculus and Turing proved that there is no solution to the decision problem relating to the predicate calculus. Put more simply, it is possible to "prove" the truth value (or the theorem status) of an expression in the propositional calculus – but not in the predicate calculus. Later it was shown that many functions (even in number theory itself) were not recursive, meaning that they could not be solved by a Turing Machine.

No one succeeded to prove that a function must be recursive in order to be effectively calculable. This is (as Post noted) a "working hypothesis" supported by overwhelming evidence. We don't know of any effectively calculable function which is not recursive, by designing new TMs from existing ones we can obtain new effectively calculable functions from existing ones and TM computability starts in every attempt to understand effective calculability (or these attempts are reducible or equivalent to TM computable functions).

The Turing Machine itself, though abstract, has many "real world" features. It is a blueprint for a computing device with one "ideal" exception: its unbounded memory (the tape is infinite). Despite its hardware appearance (a read/write head which scans a two-dimensional tape inscribed with ones and zeroes, etc.) – it is really a software application, in today's terminology. It carries out instructions, reads and writes, counts and so on. It is an automaton designed to implement an effective or mechanical method of solving functions (determining the truth value of propositions). If the transition from input to output is deterministic we have a classical automaton – if it is determined by a table of probabilities – we have a probabilistic automaton.

With time and hype, the limitations of TMs were forgotten. No one can say that the Mind is a TM because no one can prove that it is engaged in solving only recursive functions. We can say that TMs can do whatever digital computers are doing – but not that digital computers are TMs by definition. Maybe they are – maybe they are not. We do not know enough about them and about their future.

Moreover, the demand that recursive functions be computable by an UNAIDED human seems to restrict possible equivalents. Inasmuch as computers emulate human computation (Turing did believe so when he helped construct the ACE, at the time the fastest computer in the world) – they are TMs. Functions whose values are calculated by AIDED humans with the contribution of a computer are still recursive. It is when humans are aided by other kinds of instruments that we have a problem. If we use measuring devices to determine the values of a function it does not seem to conform to the definition of a recursive function. So, we can generalize and say that functions whose values are calculated by an AIDED human could be recursive, depending on the apparatus used and on the lack of ingenuity or insight (the latter being, anyhow, a weak, non-rigorous requirement which cannot be formalized).

Quantum mechanics is the branch of physics which describes the microcosm. It is governed by the Schrodinger Equation (SE). This SE is an amalgamation of smaller equations, each with its own space coordinates as variables, each describing a separate physical system. The SE has numerous possible solutions, each pertaining to a possible state of the atom in question. These solutions are in the form of wave functions (which depend, again, on the coordinates of the systems and on their associated energies). The wave function describes the probability of a particle (originally, the electron) to be inside a small volume of space defined by the aforementioned coordinates. This probability is proportional to the square of the wave function. This is a way of saying: "we cannot really predict what will exactly happen to every single particle. However, we can foresee (with a great measure of accuracy) what will happen if to a large population of particles (where will they be found, for instance)."

This is where the first of two major difficulties arose:

To determine what will happen in a specific experiment involving a specific particle and experimental setting – an observation must be made. This means that, in the absence of an observing and measuring human, flanked by all the necessary measurement instrumentation – the outcome of the wave function cannot be settled. It just continues to evolve in time, describing a dizzyingly growing repertoire of options. Only a measurement (=the involvement of a human or, at least, a measuring device which can be read by a human) reduces the wave function to a single solution, collapses it.

A wave function is a function. Its REAL result (the selection in reality of one of its values) is determined by a human, equipped with an apparatus. Is it recursive (TM computable and compatible)? In a way, it is. Its values can be effectively and mechanically computed. The value selected by measurement (thus terminating the propagation of the function and its evolution in time by zeroing its the other terms, bar the one selected) is one of the values which can be determined by an effective-mechanical method. So, how should we treat the measurement? No interpretation of quantum mechanics gives us a satisfactory answer. It seems that a probabilistic automaton which will deal with semi recursive functions will tackle the wave function without any discernible difficulties – but a new element must be introduced to account for the measurement and the resulting collapse. Perhaps a "boundary" or a "catastrophic" automaton will do the trick.

The view that the quantum process is computable seems to be further supported by the mathematical techniques which were developed to deal with the application of the Schrodinger equation to a multi-electron system (atoms more complex than hydrogen and helium). The Hartree-Fock method assumes that electrons move independent of each other and of the nucleus. They are allowed to interact only through the average electrical field (which is the charge of the nucleus and the charge distribution of the other electrons). Each electron has its own wave function (known as: "orbital") – which is a rendition of the Pauli Exclusion Principle.

The problem starts with the fact that the electric field is unknown. It depends on the charge distribution of the electrons which, in turn, can be learnt from the wave functions. But the solutions of the wave functions require a proper knowledge of the field itself!

Thus, the SE is solved by successive approximations. First, a field is guessed, the wave functions are calculated, the charge distribution is derived and fed into the same equation in

an ITERATIVE process to yield a better approximation of the field. This process is repeated until the final charge and the electrical field distribution agree with the input to the SE.

Recursion and iteration are close cousins. The Hartree-Fok method demonstrates the recursive nature of the functions involved. We can say the SE is a partial differential equation which is solvable (asymptotically) by iterations which can be run on a computer. Whatever computers can do – TMs can do. Therefore, the Hartree-Fok method is effective and mechanical. There is no reason, in principle, why a Quantum Turing Machine could not be constructed to solve SEs or the resulting wave functions. Its special nature will set it apart from a classical TM: it will be a probabilistic automaton with catastrophic behaviour or very strong boundary conditions (akin, perhaps, to the mathematics of phase transitions).

Classical TMs (CTMs, Turing called them Logical Computing Machines) are macroscopic, Quantum TMs (QTMs) will be microscopic. Perhaps, while CTMs will deal exclusively with recursive functions (effective or mechanical methods of calculation) – QTMs could deal with half-effective, semi-recursive, probabilistic, catastrophic and other methods of calculations (other types of functions).

The third level is the Universe itself, where all the functions have their values. From the point of view of the Universe (the equivalent of an infinite TM), all the functions are recursive, for all of them there are effective-mechanical methods of solution. The Universe is the domain or set of all the values of all the functions and its very existence guarantees that there are effective and mechanical methods to solve them all. No decision problem can exist on this scale (or all decision problems are positively solved). The Universe is made up only of proven, provable propositions and of theorems. This is a reminder of our finiteness and to say otherwise would, surely, be intellectual vanity.

Enough, I have broken every law of netiquette in this never ending letter and I am becoming fuzzier and fuzzier ...:o))

Sam

Dear Sam,

It is always my intention to offer our readers not only speculative ideas but also "pragmatic" lessons.

But, before descending to terrestrial considerations, I would like to briefly comment on some of your, as usual, interesting opinions.

I will maintain your order:

Alphabet and ideograms:

You talk about elites losing power, this is, to me, a prejudice. whether with ideograms, or with alphabet there will always be elites.

Machines and secret alphabet:

This is the nightmare of post modern man. The machine as dictator. To me machines are nothing more than scenery, man has built them and can dismantle them. In my opinion, the problem is much like the Wizard's Apprentice, or Aladdin. It seems that men created the machine without knowing exactly his destiny, and now he cannot stop it. The machine is not the enemy - Man is. The problem is, and always was: what do we "actually" want? But, who knows? Could dreams (and nightmares) come true?

Technology vs. Science:

The two are great myths, one of functionality and the other of purity.

Matter and energy:

These distinctions were preciously introduced by scientists themselves (re-mixing old dualistic beliefs).

As you have well noted fractals and the mathematics of complexity have gone far beyond that.

I don't know exactly what a fractal is, but is it matter or energy, information or reality?

De-centralization and power:

Your opinion regarding the future victory of the informal, networked systems is, to my mind, correct.

The Technician knows no classes and no secrets. Another question is the distribution of power.

Certainly, horizontality induces, at first view, some egalitarian version of the world. But this is to me a prejudice.

Horizontality has its own versions of power, it is the field of VIRUSES and CONTAGION.

We should study these mechanisms before making any assertions.

For the few, who, like me, put emphasis on the individual instead of on the masses, horizontality means "open doors".

Robots and laws:

Your extensive study of the laws of robotics laws demonstrates that there is no possibility of control. When one wants to play with hazard one should know what is being gambled and what is the game. Technicians, extremely focused as they are on pure functionality, always fail to consider these questions.

Quantum Mechanics:

The paradoxes and fallacies of quantum mechanics can be summarized through the life and thoughts of Richard Feynman, who was at the same time, one of the best mathematicians of QM and one of its fiercest critics. Listening to Murray Gell-Man talking about chromatism makes one lose the little trust in scientists that still remains. Quantum mechanics has finally ended in metaphysics, and not of the best class - better go back to Lucretius.

Loops and recursive learning:

It is quite curious that recursive learning, originally created for the military-industrial complex (for the purposes of rocket navigation) was founded on the observation of the fights of animals. N. Wiener writes about some of them, like the well known fight between the snake (cobra) and the mongoose. This sampling is nothing new. Most martial arts were founded on this kind of observation of nature. Tai-chi is founded on the fight between the crane and the snake, Ba Gua Zhang is founded on ten animal forms, and so on. On these matters, such old fables as the Japanese "the fencer and the cat" provides us with analyses superior to Wiener's.

Finally, this leads us to the crucial point. In your analysis of the Prigogine-type social systems, you include one philosophically-dubious term: identity-preserving. Which identity? human race? life? nature? Isn't it precisely horizontality, the net-work, the idoneus systems which are built for mutations, for the auto-propagation of "micro-changes" into "macro-effects"? The real question is: what does it mean, and what do we understand by the words SURPASSING, OVER-COMING? Oh, divine, immortal Zarathustra! How little did you suspect the form in which your strange prophecies would come to be! Ah, if you would have known....! but the oracle is always ambiguous.

Well, we shall leave the pragmatic lessons to the next letter:-)

I promise our readers some (martial arts) techniques for personal consumption:-)

best regards
roberto

PS: Just an aesthetic note. Your intensive use of the word "fuzzier" is revealing for FUZZ is the SOUND OF THE TIMES.

From the sound of bells, the "tic-tac" of mechanical clocks to the hum of atomic clocks and computers. It is the sound of speed, of electrification, intensification, movement, anxiety, desperation... the sound of the last velocity, of metamorphosis. Where did we hear that noise before? Is it, perhaps, the sound of a nest of white ants?

Dear Roberto,

I fully share your view that both the Law and Technology (as I told you, I regard them as two manifestations of one and the same thing) - are concerned with the preservation and propagation of identity.

The Law (religious and secular alike) is chiefly concerned with the protection of what IS, of the prevailing social and economic order, with the maintenance of social structure and of social function (or, at the least, of their appearance). Put differently, the Law - a mechanism of social control - is designed mainly to preserve and conserve an ideal of structural immutability coupled with functional flexibility. As immutability and flexibility are contradictory traits - the Law embodies a great tension between its dynamic aspects and its conservative ones. This tension is resolved by the introduction of the idea of identity. It is an abstraction put to good use by individuals as well as by nations and states. It is the belief that as long as an entity invariably succumbs to the same set of laws which dictate both its structure and its processes (the space of its permitted changes) - it is one and the same over time.

Thus the law is structurally static (aspires to maintain structures) and functionally dynamic (aspires to contain change and assimilate it with minimum alteration of the structure). Despite appearances to the contrary, these are the characteristic of technology and technological innovation. Technology aspires to restrain and tame change within recognizable structures. In other words, it, too, is interested in the dynamic preservation of identity by co-opting and "domesticating" change. This is typical of science as well, in my view. I do not agree with Kuhn's model of "paradigmatic" revolutions. I find Deutsch's model of scientific advance through the substitution of explanations within identity-preserving scientific processes to be much closer to reality.

In this sense, the compact disc, for instance, is the structure maintained (carried over from the long play, vinyl record) as it incorporates changes: the quality of sound, the deciphering mechanism, the material from which the record is made. The internet is a vastly changed network, the likes of which existed before (for instance, the telegraph).

You raise the important issue of incremental changes that somehow (through accumulation or epiphenomenally) accrue to a major change. But this is not the kind of change I am referring to. Few are the changes that disrupt identity to the extent of replacing it by another. One should not mistake the FLUX of identities - emerging, submerging and merging - with a FUNDAMENTAL substitution of an identity by another.

Identities are DEFINITIONS and both the Law and technology are preoccupied by definitions (law) and language (technology).

Allow me to digress a little and talk about cats, chairs and death (isn't this fun? Don't be mad at me - in dialogues there is no LAW that says that we CANNOT or NOT ALLOWED TO digress).

The sentence "all cats are black" is evidently untrue even if only one cat in the whole universe were to be white. Thus, the property "being black" cannot form a part of the definition of a cat. The lesson to be learnt is that definitions must be universal. They must apply to all the members of a defined set (the set of "all cats" in our example).

Let us try to define a chair. In doing so we are trying to capture the essence of being a chair, its "chairness". It is chairness that is defined – not this or that specific chair. We want to be able to identify chairness whenever and wherever we come across it. But chairness cannot be captured without somehow tackling and including the uses of a chair – what is it made for, what does it do or help to do. In other words, a definition must include an operative part, a function. In many cases the function of the Definiendum (the term defined) constitutes its meaning. The function of a vinyl record is its meaning. It has no meaning outside its function. The Definiens (the expression supplying the definition) of a vinyl record both encompasses and consists of its function or use.

Yet, can a vinyl record be defined in vacuum, without incorporating the record player in the definiens? After all, a vinyl record is an object containing audio information decoded by a record player. Without the "record player" bit, the definiens becomes ambiguous. It can fit an audio cassette, or a compact disc. So, the context is essential. A good definition includes a context, which serves to alleviate ambiguity.

Ostensibly, the more details provided in the definition – the less ambiguous it becomes. But this is not true. Actually, the more details provided the more prone is the definition to be ambiguous. A definition must strive to be both minimal and aesthetic. In this sense it is much like a scientific theory. It talks about the match or the correlation between language and reality. Reality is parsimonious and to reflect it, definitions must be as parsimonious as it is.

Let us summarize the characteristics of a good definition and then apply them and try to define a few very mundane terms.

First, a definition must reveal the meaning of the term or concept defined. By "meaning" I mean the independent and invariant meaning – not the culturally dependent, narrative derived, type. The invariant meaning has to do with a function, or a use. A term or a concept can have several uses or functions, even conflicting ones. But all of the uses and functions must be universally recognized. Think about Marijuana or tobacco. They have medical uses and recreational uses. These uses are expressly contradictory. But both are universally acknowledged, so both define the meaning of marijuana or tobacco and form a part of their definitions.

Let us try to construct the first, indisputable, functional, part of the definitions of a few terms.

"Chair" – Intended for sitting.

"Game" – Deals with the accomplishment of goals.

"Window" – Allows to look through it, or for the penetration of light or air (when open or not covered).

"Table" – Intended for laying things on its surface.

It is only when we know the function or use of the definiendum that we can begin to look for it. The function/use FILTERS the world and narrows the set of candidates to the definiendum. A definition is a series of superimposed language filters. Only the definendum can penetrate this line-up of filters. It is like a high-specificity membrane: only one term can slip in.

The next parameter to look for is the characteristics of the definiendum. In the case of physical objects, we will be looking for physical characteristics, of course. Otherwise, we will be looking for more ephemeral traits.

"Chair" – Solid structure Intended for sitting.

"Game" – Mental or physical activity of one or more people (the players), which deals with the accomplishment of goals.

"Window" – Planar discontinuity in a solid surface, which allows to look through it, or for the penetration of light or air (when open or not covered).

"Table" – Structure with at least one leg and one flat surface, intended for laying things on its surface.

A contrast begins to emerge between a rigorous "dictionary-language-lexical definition" and a "stipulative definition" (explaining how the term is to be used). The first might not be immediately recognizable, the second may be inaccurate, non-universal or otherwise lacking.

Every definition contrasts the general with the particular. The first part of the definiens is almost always the genus (the wider class to which the term belongs). It is only as we refine the definition that we introduce the differentia (the distinguishing features). A good definition allows for the substitution of the defined by its definition (a bit awkward if we are trying to define God, for instance, or love). This would be impossible without a union of the general and the particular. A case could be made that the genus is more "lexical" while the differentia are more stipulative. But whatever the case, a definition must include a genus and a differentia because, as we said, it is bound to reflect reality and reality is hierarchical and inclusive ("The Matriushka Doll Principle").

"Chair" – Solid structure Intended for sitting (genus). Makes use of at least one bodily axis of the sitter (differentia). Without the differentia – with the genus alone – the definition can well fit a bed or a divan.

"Game" – Mental or physical activity of one or more people (the players), which deals with the accomplishment of goals (genus), in which both the activities and the goals accomplished are reversible (differentia). Without the differentia – with the genus alone – the definition can well fit most other human activities.

"Window" – Planar discontinuity in a solid surface (genus), which allows to look through it, or for the penetration of light or air (when open or not covered) (differentia). Without the differentia – with the genus alone – the definition can well fit a door.

"Table" – Structure with at least one leg and one flat surface (genus), intended for laying things on its surface(s) (differentia). Without the differentia – with the genus alone – the definition can well fit the statue of a one-legged soldier holding a tray.

It was Locke who realized that there are words whose meaning can be precisely explained but which cannot be DEFINED in this sense. This is either because the explanatory equivalent may require more than genus and differentia – or because some words cannot be defined by means of others (because those other words also have to be defined and this leads to infinite regression). If we adopt the broad view that a definition is the explanation of meaning by other words, how can we define "blue"? Only by pointing out examples of blue. Thus, names of elementary ideas (colours, for instance) cannot be defined by words. They require an "ostensive definition" (definition by pointing out examples). This is because elementary concepts apply to our experiences (emotions, sensations, or impressions) and to *sensa* (sense data). These are usually words in a private language, our private language. How does one communicate (let alone define) the emotions one experiences during an epiphany? On the contrary: dictionary definitions suffer from gross inaccuracies precisely because they are confined to established meanings. They usually include in the definition things that they should have excluded, exclude things that they should have included or get it altogether wrong. Stipulative or ostensive definitions cannot be wrong (by definition). They may conflict with the lexical (dictionary) definition and diverge from established meanings. This may prove to be both confusing and costly (for instance, in legal matters). But this has nothing to do with their accuracy or truthfulness. Additionally, both types of definition may be

insufficiently explanatory. They may be circular, or obscure, leaving more than one possibility open (ambiguous or equivocal).

Many of these problems are solved when we introduce context to the definition. Context has four conceptual pillars: time, place, cultural context and mental context (or mental characteristics). A definition, which is able to incorporate all four elements is monovalent, unequivocal, unambiguous, precise, universal, appropriately exclusive and inclusive, aesthetic and parsimonious.

"Chair" – Artificial (context) solid structure Intended for sitting (genus). Makes use of at least one bodily axis of the sitter (differentia). Without the context, the definition can well fit an appropriately shaped rock.

"Game" – Mental or physical activity of one or more people (the players), subject to agreed rules of confrontation, collaboration and scoring (context), which deals with the accomplishment of goals (genus), in which both the activities and the goals accomplished are reversible (differentia). Without the context, the definition can well fit most other non-playing human activities.

"Window" – Planar discontinuity in a solid artificial (context) surface (genus), which allows to look through it, or for the penetration of light or air (when not covered or open) (differentia). Without the context, the definition can well fit a hole in a rock.

It is easy to notice that the distinction between the differentia and the context is rather blurred. Many of the differentia are the result of cultural and historical context. A lot of the context emerges from the critical mass of differentia.

We have confined our discussion hitherto to the structural elements of a definition. But a definition is a dynamic process. It involves the sentence doing the defining, the process of defining and the resulting defining expression (definiens). This interaction between different definitions of definition gives rise to numerous forms of equivalence, all called "definitions". Real definitions, nominal definitions, prescriptive, contextual, recursive, inductive, persuasive, impredicative, extensional and intensional definitions, are stars in a galaxy of alternative modes of explanation.

But it all boils down to the same truth: it is the type of definition chosen and the rigorousness with which we understand the meaning of "definition" that determine which words can and cannot be defined. In my view, there is still a mistaken belief that there are terms which can be defined without going outside a specified realm (=set of terms). People are trying to define life or love by resorting to chemical reactions. This reductionism inevitably and invariably leads to the Locke paradoxes. It is true that a definition must include all the necessary conditions to the definiendum. Chemical reactions are a necessary condition to life. But they are not sufficient conditions. A definition must include all the sufficient conditions as well.

Now we can try to define "definition" itself:

"Definition" – A statement which captures the meaning, the use, the function and the essence (the identity) of a term or a concept.

Let us go one level higher. Let us define ABSENCE rather than PRESENCE, nothing rather than something, inaction rather than action.

In other words, let us try to define death.

A classical point of departure in defining Death, seems to be Life itself. Death is perceived either as a cessation of Life - or as a "transit zone", on the way to a continuation of Life by other means.

While the former presents a disjunction, the latter is a continuum, Death being nothing but a corridor into another plane of existence (the hereafter).

Another, logically more rigorous approach, would be to ask "Who is Dead" when Death occurs.

In other words, an identity of the Dying (=it which "commits" Death) is essential in defining Death. But what are the means to establish an unambiguous, unequivocal identity?

Is an identity established through the use of quantitative parameters?

Is it dependent, for instance, upon the number of discrete units which comprise the functioning whole?

If so, where is the level at which useful distinctions and observations are replaced by useless scholastic mind-warps?

Example: if we study a human identity - should it be defined by the number and organization of its limbs, its cells, its atoms?

The cells in a human body are replaced (with the exception of the cells of the nervous system) every 5 years. Would this imply that we gain a new identity each time this cycle is completed?

Adopting this course of thinking leads to absurd results:

When humans die, the replacement rate of their cells is infinitely reduced. Does this mean that their identity is better and longer preserved once dead? No one would agree with this. Death is tantamount to a loss of identity - not to its preservation.

So, a qualitative yardstick is required.

We can start by asking will the identity change - if we change someone's' brain by another's? "He is not the same" - we say of someone with a brain injury. If a partial alteration of the brain causes such sea change (however partial) in the determinants of identity - it seems safe to assume that a replacement of one's brain by another will result in a total change of identity, to the point of its abolition and replacement by another.

If the brain is the locus of identity, we should be able to assert that when (the cells of) all the other organs of the body are replaced (with the exception of the brain) - the identity will remain the same.

The human hardware (body) and software (the wiring of the brain) are conversely analogous to a computer.

If we change all the software in a computer - it will still remain the same (though more or less capable) computer. This is equivalent to growing up in humans.

However, if we change the computer's processor - it will no longer be identified as the same computer.

This, partly, is the result of the separation between hardware (=the microprocessor) and software (=the programmes that it processes). There is no such separation in the human brain. These 1300 grams of yellowish material in our heads are both hardware and software.

Still, the computer analogy seems to indicate that our identity resides not in our learning, knowledge, or memories. It is an epiphenomenon. It emerges when a certain level of hardware complexity is attained. Yet, it is not so simple. If we were to eliminate someone's entire store of learning and memories (without affecting his brain) - would he still be the same person (=would he still retain the same identity)? Probably not.

Luckily, achieving the above - erasing one's learning and memories without affecting his brain - is impossible. In humans, learning and memories ARE the brain. They change the hardware that processes them in an irreversible manner.

This, naturally, cannot be said of a computer. There, the separation is clear. Change a computer's hardware and you changed its identity. And computers are software - invariant.

We are, therefore, able to confidently conclude that the brain is the sole determinant of identity, its seat and signifier. This is because our brain IS both our processing hardware and our processing software. It is also a repository of processed data. ANY subsystem comprising these functions can be justly equated with the system of which it is a part. This seems to hold true even under the wildest gedanken experiments.

A human brain detached from any body is still assumed to possess identity. And a monkey implanted with a human brain will host the identity of the former owner of the brain.

Around this seemingly faultless test revolved many of the debates which characterized the first decade of the new discipline of Artificial Intelligence (AI).

Turing's Test pits invisible (hardware - less) intelligences (=brains) against one another. The answers which they provide (by teleprinter, hidden behind partitions) determine their identity (human or not). When the software (=the answers) is accessible, no direct observation of the hardware (=the brains) is necessary in order to determine identity. But the brain's status as THE privileged identity system is such that even if no answers are forthcoming from it - the identity will reside with it.

For instance, if for some logistical or technological problem, a brain will be prevented from providing output, answers, and interactions - we are likely to assume that it has the potential to do so. Thus, in the case of an inactive brain, an identity will be the derivative of its potential to interact (rather than of its actual interaction).

After all, this, exactly, is what paleoanthropologists are attempting to do. They are trying to delineate the identity of our forefathers by studying their skulls and, by inference, their brains and their mental potentials. True, they invest effort in researching other types of bones. Ultimately, they hope to be able to draw an accurate visual description of our ancestors. But we must not confuse description with identity, phenomenology with aetiology. What dies, therefore, is the brain and only the brain.

Functionally, Death can also be defined (really, observed) from the outside. It is the cessation of the exertion of influence (=power) over physical systems. It is sudden absence of physical effects exerted by the dead object, a singularity, a discontinuity. It is not an inert state of things.

Inertia is a balance of forces - and in Death the absence of any force whatsoever is postulated. Death is, therefore, also not an entropic climax. Entropy is an isotropic, homogeneous distribution of energy. Death is the absence of any and all energies. While, outwardly, the two might seem identical - they are the two poles of a dichotomy.

So, Death, as opposed to inertia or entropy, is not something that modern physics is fully equipped to deal with. Physics, by definition, deals with forces and measurable effects. It has nothing to say about force-less, energy-devoid physical states. Actually, this would be a stark contradiction in its terms.

Indeed, this definition of Death has reality itself to argue against it.

If Death is the cessation of impacts on physical systems (=the absence of physical effects), we are hard pressed to explain memory away.

Memory is a physical effect (=electrochemical activity of the brain) within a physical system (=the Brain). It can be preserved and shipped across time and space in capsules called books or articles (or art). These containers of triggers of physical effects (in recipient brains) defy Death. The physical system which produced the memory capsule will surely cease to exist - but it will continue to physically impact other physical systems long after its demise, long after it was supposed to have ceased to do so.

Memory divorces Death from the physical world. As long as we (or our products) are remembered - we continue to have a physical effect on future physical systems. And as long as this happens - we are not technically (or, at least, fully) dead. Our Death will be fully accomplished only after our memory will have been wiped out completely, not even having the potential of being reconstructed in the future. Only then will we cease to have any dimension of existence (=effect on other physical systems).

Philosophically, there is no difference between being influenced by a direct discussion with Kant - and being influenced by his words preserved in a time-space capsule (=a book). For the

listener/reader Kant is very much alive, more alive than many of his neighbours whom he never met.

This issue can be further radicalized. What is the difference between a two dimensional representation of Kant (portrait), a three dimensional representation of the philosopher (a statue) and yet another three dimensional representation of him (Kant himself as perceived by his contemporaries who chanced to see him)?

As far as a bias-free observer is concerned (a camera linked to a computer) - there is no difference. All these representations are registered and mathematically represented in a processing unit so as to allow for a functional, relatively isomorphic mapping. Still, human observes will endow the three dimensional versions with a privileged status.

Philosophically, there is no rigorous reason to do so.

It is conceivable that, in the future, we will be able to preserve a three-dimensional likeness (a hologram), replete with smells, temperature and tactile effects. Why should the flesh and blood version be judged superior to such a likeness?

Physically, the choice of a different medium does not create a hierarchy of representations, from better to worse. In other words, the futuristic hologram should not be deemed inferior to the classic, organic version as long as they both possess the same information content.

Thus, the hierarchy cannot be derived from describing the state of things.

An hierarchy is established by considering potentials, namely: the future. Non-organic representations (hereinunder referred to as "representations") of intelligent and conscious organic originals (hereinunder referred to as ; "organic originals") are finite. The organic originals are infinite in their possibilities to create and to procreate, to change themselves and their environment, to act and be acted upon within ever more complex feedback loops.

The non-organic versions, the representations, are self contained and final. The organic originals and their representations may contain identical information in a given nano-second. But the amount of information will increase in the organic version and decrease in the non-organic one (due to the second Law of Thermodynamics). This inevitable divergence is what endows the organic original with its privileged status.

This property - of increasing the amount of information (=order) through creation and procreation - characterizes not only the organic originals but also anything that emanates from them. It characterizes human works of art and science, for instance, or the very memory of humans. All these tend to increase information (indeed, they are, in themselves, information packets).

So, could we happily sum and say that the propagation and the continuation of physical effects (through memory) is the continuation of Life after Death? Life and Memory share an important trait. They both have a negentropic (=order and information increasing) impact on their surroundings. Does that make them synonymous? Is Death only a transitory phase from one form of Life (organic) to another (informational, spiritual)?

However tempting this equation is - in most likelihood, it is also false.

The reason is that there are two sources of the increase in information and what sets them apart is not trivial. As long as the organic original lives, all creation depends upon it. After it dies, the works that it has created and the memories that are associated with it, continue to affect physical systems.

However, their ability to foster new creative work, new memories, in short: their capacity to increase order through increased information is totally dependent upon other, living, organic originals. In the absence of all other organic originals, they will stagnate and go through an entropic decrease of information and order.

So, this is the crux of the distinction between Life and Death:

LIFE is the potential, possessed by organic originals, to create (=to fight entropy by increasing information and order), using their own software. Such software can be coded into hardware - e.g., the DNA - and then the creative act involves the replication of the organic original or parts thereof.

Upon the original's DEATH, the potential to create is propagated through Memory. Creative acts, works of art and science, other creations can be carried out only within the software (=the brains) of other, living, organic originals.

Both forms of creation can co-exist during the original's life. Death, however, is proclaimed only with the incapacitation of the first form of creation (by an organic original independent of others), only when the surrogate form of creation becomes exclusive.

Memories created by one organic original resonate through the brains of others. This generates information and provokes the creative potential in recipient brains. Some of them do react by creating and, thus, play host to the parasitic, invading memory, infecting other members of the memory-space (=the cultural space).

Death is, therefore, the assimilation of the products of an organic original in a Collective. It is, indeed, the continuation of Life but in a collective, rather than in an individualistic mode.

Alternatively, Death could be defined as a terminal change in the state of the hardware with designated pieces of the software injected to the brains of the Collective. This, of course, is reminiscent of certain viral mechanisms. The comparison may be superficial and misleading - or may open a new vista: the individual as a cell in the large organism of humanity. Memory has a role in this new form of socio-political evolution which superseded Biological Evolution, as an instrument of adaptation.

Certain human reactions - e.g., opposition to change and religious and ideological wars - can perhaps be viewed as immunological reactions in this context.

I hope I made my point clear and that you can see the forest from the (too many) woods. Both the Law and Technology deal with identities and definitions - in other words, both are manipulations of language.

We have come a full circle. I opened by saying that technology is the embodiment of valid statements - such as protocols (language) in the physical realm. The Law is a series of such valid statements and, in many respects, Technology feeds the Law and embodies Laws in its hardware and software.

Now, if you still wish to get practical - I am all eyes ...:o))

Sam

Hi Sam,

I must say that your "apparent" digressions on linguistic problems and concerning life-after-death are no digression at all but very pertinent questions (all my analyses are, in fact, based solely upon life and death). These two are, in my opinion, the only pair of words that remain clear. Indeed, your digression on linguistics provides us with a beautiful example of the contradictions and tensions implied in the couplet "identity and velocity". It would seem that the Law (as does Art) has its own rules of "tempo" and "weight". Indeed, your digression offers a great example of what I call "the inclined enclosing frame", that is to say, all is in motion, even the frame of mind. This is not yet a revolution, however great, this is a change, a metamorphosis.

Regarding your comments on life-after-death I should say that, in spite of your suggestive presentation, they are nothing new. The First world War marked a red line in history fostering a new figure: the anonymous soldier, the cell in the organism, the wheel in the machine. No other form of life-after-death was wished (and considered) by the old Celtic races: sons (propagation of genetic material). In fact, what other life-after-death more real than a son? Those evolutionary ideas! Does anybody still think it is a risk that they have appeared recently? As far as I know Nietzsche was the first who cast the problem in real terms. By the way, I must say that it was Nietzsche himself who thought about life-after-death in your terms and even went far beyond by asking himself, with his habitual poetic genius: "Wouldn't Life be just a strange kind of Death?". Anyway, Nietzsche stumbled on spurious Darwinism as most thinkers, even today, do, but he thought (erroneously?) that there was a truth hidden in Darwinism: a drive to continuous perfection and thus, to supermanhood. Ignoring Nietzsche's "Renaissance-like hysteria of power" and, over all his "sins", his titanic deviation, it seems that sometimes, depending on his turbulent style and his protean fogs, he brings an investigation to light, a choleric prophecy, a question of destiny: what does it mean to us, the self-appointed pinnacle of nature, its more powerful tool, this "ever-present" drive to perfection?

To put it in your terms, which trait is common, if any, to IDENTITY and SURPASSING? If we translate such ideas to our century (which, by the way, was considered by Nietzsche as his proper home) a question arises: are we tempted, with our technological advances (genetics and artificial intelligence) into achieving supermanhood in its more spurious, materialistic, vulgar and titanical ways?

But, in spite of these metaphysical depths, I still wish to be practical:-)

As the only real subject of the law of Life and Death, my writing is always focused on the individual. Humanity, society, seems to be only cast in History (of the past). To start with, it must be said that there is no longer the old "in versus out" (internal versus external) problem (the individual against nature, the state, or culture). As I have pointed out, in a certain way, you, too, live on an inclined plane. It is not only the world which, at an ever increasing "molto vivace" tempo, is changing and threatening us - but also it is our conceptions of world which are changing. From a birds' eye view, all these characteristics: fuzziness, extreme movement, ever faster tempo, the hunger for energy, are the signs of metamorphosis. Finally, the individual himself has to put a face to the dilemma, the "to be or not to be"? Is he with man or with superman? Are we transforming ourselves into information (the modern version of what the ancients called the soul, the spirit)? Is the age of information our supermanhood: the Supermind?

Then, how will the techno-future be related to the individual, which poisons and pleasures, which treats and fights are there for him? The individual should know, in the first place, that his position is, more than ever, ad hoc.

The First Premise: THERE IS NO EXIT. The technological organization is total. It covers the Earth completely - the environment is now auxiliary. He should also know that the new selection principle is technological, the arena is in n-dimensional spaces, the weapons are mathematics. The old knowledge of nature (and its possibilities) must be accompanied by technological knowledge (for instance, a full knowledge of techno-pharmacology). Technology admits all the old myths and probably new possibilities: masks, guerrilla warfare, etc... all are there for the individual. And it poses new dangers: totalitarianism is the must of these dangers. The domination of technology works with sweeping controls. The use of the mask seems almost essential to survival (the mask of mediocrity is the best). New changes in the selection principle are always possible, the spiritual man must be fully aware of the extension and velocity of the tech-waves. The arena is a magic space, changing abruptly. To survive, the mind of the spiritual man should be like that of a Tai-chi fighter's: open to all the possibilities, just like water (the spirit of Zen), a universal action from a universal point of view. Always ready to fight, always ready to play; extremely relaxed and extremely fixed. Technology feeds on the four elements, only the fifth, Eros, is out of its dominion. Sexual love, friendship and the muses are the only true riches. Whenever we enjoy these pleasures, we are out of the power of the technological Leviathan. There are no morals yet, only models. Stoicism, hedonism and all the other pre-Socratic concepts are always helpful tools (the two ages have some things in common).

A study of other cultures is essential (a full, real-time adaptation to any place and any time). "Umheilicht" must be overcome with two movements of extreme tension: a deep study in history (natural, universal, human, religious, philosophical, etc.) and the diary observation of the technological breaking point (what the old historians called: the "short time" and the "long time"). To combine these two fields is the mark of the cultivated future man. As Goethe beautifully stated: our feet firmly on earth (reality), our minds always connected to the stars. That is our destiny and also our pleasure.

These are nothing more than incomplete advices. The total field is changing all the time. Fully settled in traditional knowledge, the spiritual man should always be attuned to the last movement, ever changing his mind without changing his heart. The (re-)creation of new

myths is the superlative "work" bestowed upon the unique person. "Life is UNCONDITIONAL, death is only the beginning."

Well, thats all for now. In my next letter, I'll talk about the king: the technician and his politics. It is essential for the unique person to know who and how rules. Your turn.

Best regards
roberto

Dear Roberto,

Indeed, we are almost in full agreement (does this begin to worry you? ...;o))

I also think that the age of information will see the revolutionizing of the very process of evolution, its speed, its ends, its means, its distribution (all-pervasiveness). I am not sure that we have a choice (between Man and Superman, for instance). I think the phase transition will occur when a new principle of selection is introduced, as you have suggested. It will be a principle of selection between competing models of civilization. In this, its nature will be no different to its predecessors. But it will employ different criteria. For the first time, technology per se, as DISTINCT from humanity - will have a say. From now on - and ever more so in the future - we are TWO equal partners: the Man and the Machine. The increasing complexity of the latter will render it intelligent and the equal of Man himself.

Actually, what you are talking about in your letter is a kulturkampf, a clash or battle of cultures. I tend to doubt this specific outcome - I think transition will be smoother and that disparate cultures will COHABITATE - though I fully agree with all your premises. Here is why:

Culture is a hot topic. Scholars (Fukoyama, Huntington, to mention but two) disagree about whether this is the end of history or the beginning of a particularly nasty chapter of it.

What makes cultures tick and why some of them tick discernibly better than others – is the main bone of contention.

We can view cultures through the prism of their attitude towards their constituents: the individuals they are comprised of. More so, we can classify them in accordance with their approach towards "humanness", the experience of being human.

Some cultures are evidently anthropocentric – others are anthropo-transcendental. These two lingual coins need elaboration to be fully comprehended.

A culture which cherishes the human potential and strives to create the conditions needed for its fullest materialization and manifestation is an anthropocentric culture. Such striving is the top priority, the crowning achievement, the measuring rod of such a culture, its attainment - its criterion of success or failure.

On the other pole of the dichotomy we find cultures which look beyond humanity. This "transcendental" look has multiple purposes.

Some cultures want to transcend human limitations, others to derive meaning, yet others to maintain social equilibrium. But what is common to all of them – regardless of purpose – is the subjugation of human endeavour, of human experience, human potential, all things human to this transcendence.

Granted: cultures resemble living organisms. They evolve, they develop, they procreate. None of them was "created" the way it is today. Cultures go through Differential Phases – wherein they re-define and re-invent themselves using varied parameters. Once these phases are over – the results are enshrined during the Inertial Phases. The Differential Phases are period of social dislocation and upheaval, of critical, even revolutionary thinking, of new technologies, new methods of achieving set social goals, identity crises, imitation and differentiation.

They are followed by phases of a diametrically opposed character:

Preservation, even stagnation, ritualism, repetition, rigidity, emphasis on structures rather than contents.

Anthropocentric cultures have differential phases which are longer than the inertial ones.

Anthropotranscendental ones tend to display a reverse pattern.

This still does not solve two basic enigmas:

What causes the transition between differential and inertial phases?

Why is it that anthropocentricity coincides with differentiation and progress / evolution – while other types of cultures with an inertial framework?

A culture can be described by using a few axes:

Distinguishing versus Consuming Cultures

Some cultures give weight and presence (though not necessarily equal) to each of their constituent elements (the individual and social structures). Each such element is idiosyncratic and unique. Such cultures would accentuate attention to details, private enterprise, initiative, innovation, entrepreneurship, inventiveness, youth, status symbols, consumption, money, creativity, art, science and technology.

These are the things that distinguish one individual from another.

Other cultures engulf their constituents, assimilate them to the point of consumption. They are deemed, a priori, to be redundant, their worth a function of their actual contribution to the whole.

Such cultures emphasize generalizations, stereotypes, conformity, consensus, belonging, social structures, procedures, forms, undertakings involving the labour or other input of human masses.

Future versus Past Oriented Cultures

Some cultures look to the past – real or imaginary – for inspiration, motivation, sustenance, hope, guidance and direction. These cultures tend to direct their efforts and resources and invest them in what IS. They are, therefore, bound to be materialistic, figurative, substantive, earthly.

They are likely to prefer old age to youth, old habits to new, old buildings to modern architecture, etc. This preference of the Elders (a term of veneration) over the Youngsters (a denigrating term) typifies them strongly. These cultures are likely to be risk averse.

Other cultures look to the future – always projected – for the same reasons.

These cultures invest their efforts and resources in an ephemeral future (upon the nature or image of which there is no agreement or certainty).

These cultures are, inevitably, more abstract (living in an eternal Gedankenexperiment), more imaginative, more creative (having to design multiple scenarios just to survive). They are also more likely to have a youth cult: to prefer the young, the new, the revolutionary, the fresh – to the old, the habitual, the predictable. They are be risk-centered and risk-assuming cultures.

Static Versus Dynamic (Emergent) Cultures

Consensus versus Conflictual Cultures

Some cultures are more cohesive, coherent, rigid and well-bounded and constrained. As a result, they will maintain an unchanging nature and be static. They discourage anything which could unbalance them or perturb their equilibrium and homeostasis. These cultures encourage consensus-building, teamwork, togetherness and we-ness, mass experiences, social sanctions and social regulation, structured socialization, peer loyalty, belonging, homogeneity, identity formation through allegiance to a group. These cultures employ numerous self-preservation mechanisms and strict hierarchy, obedience, discipline, discrimination (by sex, by race, above all, by age and familial affiliation).

Other cultures seem more "ruffled", "arbitrary", or disturbed. They are pluralistic, heterogeneous and torn. These are the dynamic (or, fashionably, the emergent) cultures. They encourage conflict as the main arbiter in the social and economic spheres ("the invisible hand of the market" or the American "checks and balances"), contractual and transactional relationships, partisanship, utilitarianism, heterogeneity, self fulfilment, fluidity of the social structures, democracy.

Exogenic-Extrinsic Meaning Cultures versus Endogenic-Intrinsic Meaning Cultures

Some cultures derive their sense of meaning, of direction and of the resulting wish-fulfillment by referring to frameworks which are outside them or bigger than them. They derive meaning only through incorporation or reference.

The encompassing framework could be God, History, the Nation, a Calling or a Mission, a larger Social Structure, a Doctrine, an Ideology, or a Value or Belief System, an Enemy, a Friend, the Future – anything qualifies which is bigger and outside the meaning-seeking culture.

Other cultures derive their sense of meaning, of direction and of the resulting wish fulfilment by referring to themselves – and to themselves only. It is not that these cultures ignore the past – they just do not re-live it. It is not that they do not possess a Values or a Belief System or even an ideology – it is that they are open to the possibility of altering it.

While in the first type of cultures, Man is meaningless were it not for the outside systems which endow him with meaning – In the latter the outside systems are meaningless were it not for Man who endows them with meaning.

Virtually Revolutionary Cultures versus Structurally-Paradigmatically Revolutionary Cultures

All cultures – no matter how inert and conservative – evolve through the differential phases.

These phases are transitory and, therefore, revolutionary in nature.

Still, there are two types of revolution:

The Virtual Revolution is a change (sometimes, radical) of the structure – while the content is mostly preserved. It is very much like changing the hardware without changing any of the software in a computer.

The other kind of revolution is more profound. It usually involves the transformation or metamorphosis of both structure and content. In other cases, the structures remain intact – but they are hollowed out, their previous content replaced by new one. This is a change of paradigm (superbly described by the late Thomas Kuhn in his masterpiece: "The Structure of Scientific Revolutions").

The Post Traumatic Stress Syndrome Differentiating Factor

As a result of all the above, cultures react with shock either to change or to its absence.

A taxonomy of cultures can be established along these lines:

Those cultures which regard change as a trauma – and those who traumatically react to the absence of change, to paralysis and stagnation.

This is true in every sphere of life: the economic, the social, in the arts, the sciences.

Neurotic Adaptive versus Normally Adaptive Cultures

This is the dividing line:

Some cultures feed off fear and trauma. To adapt, they developed neuroses. Other cultures feed off hope and love – they have adapted normally.

<i>Neurotic Cultures</i>	<i>Normal Cultures</i>
Consuming	Distinguishing
Past Oriented	Future Oriented
Static	Dynamic (Emergent)
Consensual	Conflictive
Exogenic-Extrinsic	Endogenic-Intrinsic
Virtual Revolutionary	Structurally-Paradigmatically Revolutionary
PTSS reaction to change	PTSS reaction to stagnation

So, are these types of cultures doomed to clash, as the current fad goes – or can they cohabitate?

It seems that the Neurotic cultures are less adapted to win the battle to survive. The fittest are those cultures flexible enough to respond to an ever changing world – and at an ever increasing pace, at that. The neurotic cultures are slow to respond, rigid and convulsive. Being past-orientated means that they emulate and imitate the normal cultures – but only when they have become part of the past. Alternatively, they assimilate and adopt some of the attributes of the past of normal cultures. This is why a traveller who visits a neurotic culture (and is coming from a normal one) often has the feeling that he has been thrust to the past, that he is experiencing a time travel.

A War of Cultures is, therefore, not very plausible. The neurotic cultures need the normal cultures. The latter are the generators of the former's future. A normal culture's past is a neurotic culture's future.

Deep inside, the neurotic cultures know that something is wrong with them, that they are ill-adapted. That is why members of these cultural spheres entertain overt emotions of envy, hostility even hatred – coupled with explicit sensations of inferiority, inadequacy, disappointment, disillusionment and despair. The eruptive nature (the neurotic rage) of these cultures is exactly the result of these inner turmoils. On the other hand, soliloquy is not action, often it is a substitute to it. Very few neurotic cultures are suicidal – and then for very brief periods of time.

To forgo the benefits of learning from the experience of normal cultures how to survive would be suicidal, indeed. This is why I think that the transition to a different model, replete with different morals, will be completed with success. But it will not eliminate all pervious models - I foresee cohabitation.

Sam

Hi Sam,

I am not worried at all about being in full agreement with you - it is you who should be worried indeed:-)

But, I think we are not dealing with the same question. I am presenting this question in absolute terms. Though all those considerations about cultures are interesting indeed, it is not my intention at all to come with another page of the "futurology of technology" or to try to make a new version of techno-waves, futures shocks and versions of culture wars of Toffler's, Huntington's and all the rest (E. J. said enough in 1931). Concerning this special issue I will elaborate in my next letter, again with pragmatic intentions. I will try to give the reader a brief picture of the king: the technician. It is essential for the individual to know who is the ruler and how he rules.

But I wasn't talking about that when I referred to Nietzsche. My question was not about cultures, nations, techno-waves, races or any other profiles. My interrogation was about the human species as a whole, those strange things we called humans. I don't know what SURPASSING, OVERCOMING, mean de facto. I was just asking the readers (and myself): What does it mean, if we accept the hypothesis (and this is another question) of supermanhood?

Could be a significant change in the human species? I am thinking in "surpassing" humans with genetic engineering, the creation of not only new races but whole new species. That is my central idea in this dialogue: What if technology embodies the Law of Nature, and the Law of nature is an eternal drive to perfection? Doesn't it mean that man must, de facto, be overcome? Does anybody think yet, that a superior species (if this means anything at all) would live with us in pax and harmony? Finally, I will ask you again: can humans be surpassed? What does it mean, philosophically and existentially, OVERCOMING?

Well, I promise to the readers that the next letter will be entirely pragmatic:-)

We will talk a little about the king and his clothes? Or is he naked?

Best regards
roberto

Dear RCM,

Sometimes, I am so obsessed with WHAT I have to say - that I forget to explain WHY I say it.

I fully understood your questions the first time around. The confluence of genetic engineering, computer networking (communal neural networks), telecommunications (especially wireless) and mass transport is bound to alter humanity profoundly and irreversibly. One possibility is, indeed, surpassing and overcoming on the way to the emergence of a Superman, in the Nietzschean sense (whatever that is). Whether this is the inevitable result - is debatable. But it is a possibility which merits discussion.

I prefer to be less metaphysical. I think that a new CULTURE will emerge. Cultures are highly structured reactive patterns adopted by human communities in response to shocks (including positive shocks), traumas, or drastic changes in circumstances. Cultures to human communities are very much as personalities are to individuals. I think the new technologies will spawn a host of new cultures (or, more like it, a global new culture).

BUT

We must always bear in mind that:

- a. Only a small minority of humanity will be thus effected. Only the citizens of the rich, developed world are likely to have access to genetic engineering and computing and telecommunications on a pervasive scale. The "new species" is likely to be an isolated phenomenon, confined to niches of the Earth. The "new culture" will be a Rich Man's culture. This is what I meant by cohabitation. Even today we have technologically advanced cultures cohabiting with stone age cultures (in the Amazon River basin, in Africa, in Asia).
- b. Even if we assume that the idea of historical progress (asymptotically aspiring to perfection) is valid (HIGHLY debatable); and even if we assume that technology will come to embody this idea (of progress); and even if we accept that, in becoming the embodiment of the idea of progress - technology will supplant the Law, it will BECOME THE LAW - even then, it is not certain that it will have any impact on humanity as such. Judging by history, it is more reasonable to assume that people will simply react by generating a new culture. They will respond to these new realities, making use of a series of newly and especially developed formalisms, rituals and behaviours intended to enhance their survivability in a technological universe.
- c. It would not be true to say that history can be no guide to us this time around because the new technologies are so unprecedented. What can history teach us about genetic engineering and its capacity to reconstruct Man and to create whole new species, you can wonder. The answer is: it can teach us a lot. Low-tech genetic engineering (especially in agriculture and breeding) has been going on for millennia now. How can history help us when we try to cope with the Internet? The answer is: in many ways. The Internet is only the latest in a string of networks which spanned the globe (the telegraph, the railway, the radio, television).

So, I went and had a look at history and came up with the conclusion that ALL cultures that I reviewed (by no means a complete survey), present and future, fall into the taxonomic framework that I suggested to you. I believe that the NEW CULTURE, the reaction to the new technologies, will fall into one of the taxonomic rubrics that I suggested and that it will co-exist with other, older, different cultures. That is why I went into this elaborate classification of cultures.

I hope I made myself a lot clearer and I am awaiting your Hans Christian Andersen treatment of the technicians and their clothes.

Sam

Hi Sam

Reading your answer, I finally understand why people are not scared by genetic progress: it is that we simply cannot imagine a surpassing of MAN. We, as the self-appointed pinnacle of nature cannot conceive of anything superior to us. You say that even though THIS CHANGE is possible - it is not likely. But, don't you think that is in contradiction with your own system. You affirm that manipulation of information can be incarnated in matter, that is to say, that changes in the quanta of info imply a change in matter. So, dreams could come true.

Can we dream about something higher than man? Are there any more steps between us and the Universe?:-) What I was asking you, my dear Ph. D., is to discuss this matter, from a philosophical point of view. But you elude it, maybe it is because we humans cannot think further than humans do, maybe there is no concept of perfection beyond Man...

Well, let us get off these speculations and take off into the land of the Technicians, these new mandarins of the Empire(R). But, before starting our "graphic adventure" in the techno-jungle of our Play-SuperStation(TM) thou should know the rules of the game and the tools at thou service.

First: This is a game, any resemblance to reality is pure coincidence.

Second: Every instrument has two sides.

Third: To play this game everyone has to pay a price (and you know what it is).

Fourth: The game is not over yet.

"Is it a fact - or have I dreamt it - that by means of electricity, the world of matter has become a great nerve, vibrating thousands of miles in a breathless point of time? Rather, the round globe is a vast head, a brain, instinct with intelligence!"

Nathaniel Hawthorn (1804-1864)

The Technician, (a lullaby)

Believe me or not, beloved public, but the truth is that our king, the king of this tale, was born a poor child, son of the marriage between Science and "homo faber". For some years he served as apprentice in forges and labs, learning all he saw. One day he had a dream and in it he was the king the world. Inebriated by his dreams, in keeping with the way of the old heroes, he went to the battlefields with his new toys and his grey uniform. Its was time for the world to know him.

The birth of a new ruler. So, with his war machines, he drew a red line (hereinafter called the "death zone") in history. 1914, year one of Age of the Technicians (TM). In those days he was young, arrogant and violent. He was not interested in art, the spirit, self-control... but in his death toys. After the "necessary" destruction of the old world, he donned his new clothes: the overall, the uniform of the Worker, to build his own world (that he had a dreamt of). But the old directors were stupid, they did not see the new world, they were blind and weak, he had to liquidate them. Like the Pied Piper he walked all over the world, playing his electrifying

symphony of work and vengeance. All, young and old alike, awoke and heard the enchantment. The hammer hit the anvil, the sickle harvested flowers and heads, the propeller triturated meat. Flames twisted in revolt, the earth opened its abyss wherefrom the demons entered, but nothing of this affected our young boy, who looked fascinated by his map and his time-clocks and pushed the buttons of his switchboard. When the tempest ended, he was the director of the factory. But, now he needed money,, so he went with his machines to Eldorado(TM), he invented RiskGames (TM) to win in the roulette of the Casino of the Isle(R). Now he was the the director of Starve, Mooty and Poors(TM) and wore Armani(TM). But his thirst was infinite, he wanted all the prize. He wanted girls: the Romans ravished the Sabines(TM). He became an artist, clad in leather, he started a heavy-metal band called The Garage(TM). It was then that he discovered TV, so he contracted a band from Seattle(TM) and invented the grunge. He was now the director of a EFE(TM) (Entertainment For Ever), the megacorp of communications, and wore Burton(TM) shirts. He has all the channels: sports, porno, music, surgery, religion, even one of horoscopes, it was called Acuarium(TM) TV and the TV spot went: "we sell future 24 hours a day, only 5\$ per hour". Now he had already discovered the most cruel and sublime pleasure: to control other people's minds. So he bought the various parts of AT&T and made the world over a Net of titanium and silicon - satellites were marked with his trademarked name. Then, he created a new company of software games with the best techno-artists he found. He also bought the biggest chemical/genetic corporation: SupremArtis(TM). Finally he merged all them up and created the Ultimate Super-Megacorp, which sold mega-consoles whose games were more real than Reality(TM), and he called it The Dream(TM).

Game Over

Insert Coin

Well, hope you liked it. I think it is enough for now. It is always a pleasure to dialogue with you, hope we will keep our team work - I think our different points of view can offer new perspectives to our readers and that is a very good thing.

And, dear readers, never forget: technology, the machine, is only a scenery, you are both the actor and the author.

"He only earns his freedom and his life
Who takes them everyday by storm."

Goethe

best regards

Roberto

[Return](#)

The Metaphors of the Net

Four metaphors come to mind when we consider the Internet "philosophically":

1. A Genetic Blueprint

2. A Chaotic Library

3. A Collective Nervous System

4. An Unknown Continent (Terra Internetica)

I. The Genetic Blueprint

The concept of network is intuitive and embedded in human nature and history. "God" is a network construct: all-pervasive, all-embracing, weaving even the loosest strands of humanity into a tapestry of faith and succor. Obviously, politics and political alliances are about networks and networking. Even the concept of contagion revolves around the formation and functioning of networks: contagious diseases and, much later, financial contagion and memes all describe complex interactions among multiple nodes of networks.

Network metaphors replace each other regularly. Medieval contemporaries knew about contagion: they instituted quarantines and advised people exposed to the Black Death to "depart quickly, go far, tarry long". Still, they firmly believed that it was God who inflicted illness and epidemics upon sinners. God was the prevailing network metaphor at the time, not bacteria or viruses. People in the Middle Ages would probably have explained away television and the Internet as acts of God, too.

A decade after the invention of the World Wide Web, Tim Berners-Lee is promoting the "Semantic Web". The Internet hitherto is a repository of digital content. It has a rudimentary inventory system and very crude data location services. As a sad result, most of the content is invisible and inaccessible. Moreover, the Internet manipulates strings of symbols, not logical or semantic propositions. In other words, the Net compares values but does not know the meaning of the values it thus manipulates. It is unable to interpret strings, to infer new facts, to deduce, induce, derive, or otherwise comprehend what it is doing. In short, it does not understand language. Run an ambiguous term by any search engine and these shortcomings become painfully evident. This lack of understanding of the semantic foundations of its raw material (data, information) prevent applications and databases from sharing resources and feeding each other. The Internet is discrete, not continuous. It resembles an archipelago, with users hopping from island to island in a frantic search for relevancy.

Even visionaries like Berners-Lee do not contemplate an "intelligent Web". They are simply proposing to let users, content creators, and web developers assign descriptive meta-tags ("name of hotel") to fields, or to strings of symbols ("Hilton"). These meta-tags (arranged in semantic and relational "ontologies" - lists of metatags, their meanings and how they relate to each other) will be read by various applications and allow them to process the associated

strings of symbols correctly (place the word "Hilton" in your address book under "hotels"). This will make information retrieval more efficient and reliable and the information retrieved is bound to be more relevant and amenable to higher level processing (statistics, the development of heuristic rules, etc.). The shift is from HTML (whose tags are concerned with visual appearances and content indexing) to languages such as the DARPA Agent Markup Language, OIL (Ontology Inference Layer or Ontology Interchange Language), or even XML (whose tags are concerned with content taxonomy, document structure, and semantics). This would bring the Internet closer to the classic library card catalogue.

Even in its current, pre-semantic, hyperlink-dependent, phase, the Internet brings to mind Richard Dawkins' seminal work "The Selfish Gene" (OUP, 1976). This would be doubly true for the Semantic Web.

Dawkins suggested to generalize the principle of natural selection to a law of the survival of the fittest. "A fittest thing is a collection of atoms which is permanent enough or common enough to deserve a name". He then proceeded to describe the emergence of "Replicators" - molecules which created copies of themselves. The Replicators that survived in the competition for scarce raw materials were characterized by high longevity, fecundity, and copying-fidelity. Replicators (now known as "genes") constructed "survival machines" (organisms) to shield them from the vagaries of an ever-harsher environment.

This is very reminiscent of the Internet. The "fittest things" are HTML coded web pages. They are replicators - they create copies of themselves every time their "web address" (URL) is clicked. The HTML coding of a web page can be thought of as "genetic material". It contains all the information needed to reproduce the page. And, exactly as in nature, the higher the longevity, fecundity (measured in links to the web page from other web sites), and copying-fidelity of the HTML code - the higher its chances to survive (as a web page).

Replicator molecules (DNA) and replicator HTML have one thing in common - they are both packaged information. In the appropriate context (the right biochemical "soup" in the case of DNA, the right software application in the case of HTML code) - this information generates a "survival machine" (organism, or a web page).

The Semantic Web will only increase the longevity, fecundity, and copying-fidelity of the underlying code (in this case, OIL or XML instead of HTML). By facilitating many more interactions with many other web pages and databases - the underlying "replicator" code will ensure the "survival" of "its" web page (=its survival machine). In this analogy, the web page's "DNA" (its OIL or XML code) contains "single genes" (semantic meta-tags). The whole process of life is the unfolding of a kind of Semantic Web.

In a prophetic paragraph, Dawkins described the Internet:

"The first thing to grasp about a modern replicator is that it is highly gregarious. A survival machine is a vehicle containing not just one gene but many thousands. The manufacture of a body is a cooperative venture of such intricacy that it is almost impossible to disentangle the contribution of one gene from that of another. A given gene will have many different effects on quite different parts of the body. A given part of the body will be influenced by many genes and the effect of any one gene depends on interaction with many others...In terms of the

analogy, any given page of the plans makes reference to many different parts of the building; and each page makes sense only in terms of cross-reference to numerous other pages."

What Dawkins neglected in his important work is the concept of the Network. People congregate in cities, mate, and reproduce, thus providing genes with new "survival machines". But Dawkins himself suggested that the new Replicator is the "meme" - an idea, belief, technique, technology, work of art, or bit of information. Memes use human brains as "survival machines" and they hop from brain to brain and across time and space ("communications") in the process of cultural (as distinct from biological) evolution. The Internet is a latter day meme-hopping playground. But, more importantly, it is a Network. Genes move from one container to another through a linear, serial, tedious process which involves prolonged periods of one on one gene shuffling ("sex") and gestation. Memes use networks. Their propagation is, therefore, parallel, fast, and all-pervasive. The Internet is a manifestation of the growing predominance of memes over genes. And the Semantic Web may be to the Internet what Artificial Intelligence is to classic computing. We may be on the threshold of a self-aware Web.

2. The Internet as a Chaotic Library

A. The Problem of Cataloguing

The Internet is an assortment of billions of pages which contain information. Some of them are visible and others are generated from hidden databases by users' requests (["Invisible Internet"](#)).

The Internet exhibits no discernible order, classification, or categorization. Amazingly, as opposed to "classical" libraries, no one has yet invented a (sorely needed) Internet cataloguing standard (remember Dewey?). Some sites indeed apply the Dewey Decimal System to their contents ([Suite101](#)). Others default to a directory structure ([Open Directory](#), [Yahoo!](#), [Look Smart](#) and others).

Had such a standard existed (an agreed upon numerical cataloguing method) - each site could have self-classified. Sites would have an interest to do so to increase their visibility. This, naturally, would have eliminated the need for today's clunky, incomplete and (highly) inefficient search engines.

Thus, a site whose number starts with 900 will be immediately identified as dealing with history and multiple classification will be encouraged to allow finer cross-sections to emerge. An example of such an emerging technology of "self classification" and "self-publication" (though limited to scholarly resources) is the ["Academic Resource Channel" by Scindex](#).

Moreover, users will not be required to remember reams of numbers. Future browsers will be akin to catalogues, very much like the applications used in modern day libraries. Compare this utopia to the current dystopy. Users struggle with mounds of irrelevant material to finally reach a partial and disappointing destination. At the same time, there likely are web sites which exactly match the poor user's needs. Yet, what currently determines the chances of a

happy encounter between user and content - are the whims of the specific search engine used and things like meta-tags, headlines, a fee paid, or the right opening sentences.

B. Screen vs. Page

The computer screen, because of physical limitations (size, the fact that it has to be scrolled) fails to effectively compete with the printed page. The latter is still the most ingenious medium yet invented for the storage and release of textual information. Granted: a computer screen is better at highlighting discrete units of information. So, these differing capacities draw the battle lines: structures (printed pages) versus units (screen), the continuous and easily reversible (print) versus the discrete (screen).

The solution lies in finding an efficient way to translate computer screens to printed matter. It is hard to believe, but no such thing exists. Computer screens are still hostile to off-line printing. In other words: if a user copies information from the Internet to his word processor (or vice versa, for that matter) - he ends up with a fragmented, garbage-filled and non-aesthetic document.

Very few site developers try to do something about it - even fewer succeed.

C. Dynamic vs. Static Interactions

One of the biggest mistakes of content suppliers is that they do not provide a "static-dynamic interaction".

Internet-based content can now easily interact with other media (e.g., CD-ROMs) and with non-PC platforms (PDA's, mobile phones).

Examples abound:

A CD-ROM shopping catalogue interacts with a Web site to allow the user to order a product. The catalogue could also be updated through the site (as is the practice with CD-ROM encyclopedias). The advantages of the CD-ROM are clear: very fast access time (dozens of times faster than the access to a Web site using a dial up connection) and a data storage capacity hundreds of times bigger than the average Web page.

Another example:

A PDA plug-in disposable chip containing hundreds of advertisements or a "yellow pages". The consumer selects the ad or entry that she wants to see and connects to the Internet to view a relevant video. She could then also have an interactive chat (or a conference) with a salesperson, receive information about the company, about the ad, about the advertising agency which created the ad - and so on.

CD-ROM based encyclopedias (such as the [Britannica](#), or the [Encarta](#)) already contain hyperlinks which carry the user to sites selected by an Editorial Board.

Note

CD-ROMs are probably a doomed medium. Storage capacity continually increases exponentially and, within a year, desktops with 80 Gb hard disks will be a common sight. Moreover, the much heralded Network Computer - the stripped down version of the personal computer - will put at the disposal of the average user terabytes in storage capacity and the processing power of a supercomputer. What separates computer users from this utopia is the communication bandwidth. With the introduction of radio and satellite broadband services, DSL and ADSL, cable modems coupled with advanced compression standards - video (on demand), audio and data will be available speedily and plentifully.

The CD-ROM, on the other hand, is not mobile. It requires installation and the utilization of sophisticated hardware and software. This is no user friendly push technology. It is nerd-oriented. As a result, CD-ROMs are not an immediate medium. There is a long time lapse between the moment of purchase and the moment the user accesses the data. Compare this to a book or a magazine. Data in these oldest of media is instantly available to the user and they allow for easy and accurate "back" and "forward" functions.

Perhaps the biggest mistake of CD-ROM manufacturers has been their inability to offer an integrated hardware and software package. CD-ROMs are not compact. A Walkman is a compact hardware-cum-software package. It is easily transportable, it is thin, it contains numerous, user-friendly, sophisticated functions, it provides immediate access to data. So does the discman, or the MP3-man, or the new generation of e-books (e.g., E-Ink's). This cannot be said about the CD-ROM. By tying its future to the obsolete concept of stand-alone, expensive, inefficient and technologically unreliable personal computers - CD-ROMs have sentenced themselves to oblivion (with the possible exception of reference material).

D. [Online Reference](#)

A visit to the on-line [Encyclopaedia Britannica](#) demonstrates some of the tremendous, mind boggling possibilities of online reference - as well as some of the [obstacles](#).

Each entry in this mammoth work of reference is hyperlinked to relevant Web sites. The sites are carefully screened. Links are available to data in various forms, including audio and video. Everything can be copied to the hard disk or to a R/W CD.

This is a new conception of a knowledge centre - not just a heap of material. The content is modular and continuously enriched. It can be linked to a voice Q&A centre. Queries by subscribers can be answered by e-mail, by fax, posted on the site, hard copies can be sent by post. This "Trivial Pursuit" or "homework" service could be very popular - there is considerable appetite for "Just in Time Information". The [Library of Congress](#) - together with a few other libraries - is in the process of making just such a service available to the public (CDRS - Collaborative Digital Reference Service).

E. *Derivative Content*

The Internet is an enormous reservoir of archives of freely accessible, or even public domain, information.

With a minimal investment, this information can be gathered into coherent, theme oriented, cheap compilations (on CD-ROMs, print, e-books or other media).

F. E-Publishing

The Internet is by far the world's largest publishing platform. It incorporates FAQs (Q&A's regarding almost every technical matter in the world), e-zines (electronic magazines), the electronic versions of print dailies and periodicals (in conjunction with on-line news and information services), reference material, e-books, monographs, articles, minutes of discussions ("threads"), conference proceedings, and much more besides.

The Internet represents major advantages to publishers. Consider the electronic version of a p-zine.

Publishing an e-zine promotes the sales of the printed edition, it helps sign on subscribers and it leads to the sale of advertising space. The electronic archive function (see next section) saves the need to file back issues, the physical space required to do so and the irritating search for data items.

The future trend is a combined subscription to both the electronic edition (mainly for the archival value and the ability to hyperlink to additional information) and to the print one (easier to browse the current issue). [The Economist](#) is already offering free access to its electronic archives as an inducement to its print subscribers.

The electronic daily presents other advantages:

It allows for immediate feedback and for flowing, almost real-time, communication between writers and readers. The electronic version, therefore, acquires a gyroscopic function: a navigation instrument, always indicating deviations from the "right" course. The content can be instantly updated and breaking news incorporated in older content.

Specialty hand held devices already allow for downloading and storage of vast quantities of data (up to 4000 print pages). The user gains access to libraries containing hundreds of texts, adapted to be downloaded, stored and read by the specific device. Again, a convergence of standards is to be expected in this field as well (the final contenders will probably be [Adobe's PDF](#) against [Microsoft's MS-Reader](#)).

Currently, e-books are dichotomously treated either as:

Continuation of print books (p-books) by other means, or as a whole new publishing universe.

Since p-books are a more convenient medium than e-books - they will prevail in any straightforward "medium replacement" or "medium displacement" battle.

In other words, if publishers will persist in the simple and straightforward conversion of p-books to e-books - then e-books are doomed. They are simply inferior and cannot offer the comfort, tactile delights, browseability and scanability of p-books.

But e-books - being digital - open up a vista of hitherto neglected possibilities. These will only be enhanced and enriched by the introduction of e-paper and e-ink. Among them:

- Hyperlinks within the e-book and without it - to web content, reference works, etc.;
- Embedded instant shopping and ordering links;
- Divergent, user-interactive, decision driven plotlines;
- Interaction with other e-books (using a wireless standard) - collaborative authoring or reading groups;
- Interaction with other e-books - gaming and community activities;
- Automatically or periodically updated content;
- Multimedia;
- Database, Favourites, Annotations, and History Maintenance (archival records of reading habits, shopping habits, interaction with other readers, plot related decisions and much more);
- Automatic and embedded audio conversion and translation capabilities;
- Full wireless piconetworking and scatternetworking capabilities.

The technology is still not fully there. Wars rage in both the wireless and the e-book realms. Platforms compete. Standards clash. Gurus debate. But convergence is inevitable and with it the e-book of the future.

G. The Archive Function

The Internet is also the world's biggest cemetery: tens of thousands of deadbeat sites, still accessible - the "Ghost Sites" of this electronic frontier.

This, in a way, is collective memory. One of the Internet's main functions will be to preserve and transfer knowledge through time. It is called "memory" in biology - and "archive" in library science. [The history of the Internet](#) is being documented by search engines (Google) and specialized services (Alexa) alike.

3. The Internet as a Collective Nervous System

Drawing a comparison from the development of a human infant - the human race has just commenced to develop its neural system.

The Internet fulfils all the functions of the Nervous System in the body and is, both functionally and structurally, pretty similar. It is decentralized, redundant (each part can serve as functional backup in case of malfunction). It hosts information which is accessible through various paths, it contains a memory function, it is multimodal (multimedia - textual, visual, audio and animation).

I believe that the comparison is not superficial and that studying the functions of the brain (from infancy to adulthood) is likely to shed light on the future of the Net itself. The Net - exactly like the nervous system - provides pathways for the transport of goods and services - but also of memes and information, their processing, modeling, and integration.

A. The Collective Computer

Carrying the metaphor of "a collective brain" further, we would expect the processing of information to take place on the Internet, rather than inside the end-user's hardware (the same way that information is processed in the brain, not in the eyes). Desktops will receive results and communicate with the Net to receive additional clarifications and instructions and to convey information gathered from their environment (mostly, from the user).

Put differently:

In future, servers will contain not only information (as they do today) - but also software applications. The user of an application will not be forced to buy it. He will not be driven into hardware-related expenditures to accommodate the ever growing size of applications. He will not find himself wasting his scarce memory and computing resources on passive storage. Instead, he will use a browser to call a central computer. This computer will contain the needed software, broken to its elements (=applets, small applications). Anytime the user wishes to use one of the functions of the application, he will siphon it off the central computer. When finished - he will "return" it. Processing speeds and response times will be such that the user will not feel at all that he is not interacting with his own software (the question of ownership will be very blurred). This technology is available and it provoked a heated debate about the future shape of the computing industry as a whole (desktops - really power packs - or network computers, a little more than dumb terminals). Access to online applications are already offered to corporate users by ASPs (Application Service Providers).

In the last few years, scientists have harnessed the combined power of online PC's to perform astounding feats of distributed parallel processing. Millions of PCs connected to the net co-process signals from outer space, meteorological data, and solve complex equations. This is a prime example of a collective brain in action.

B. The Intranet - a Logical Extension of the Collective Computer

LANs (Local Area Networks) are no longer a rarity in corporate offices. WANs (wide Area Networks) are used to connect geographically dispersed organs of the same legal entity (branches of a bank, daughter companies of a conglomerate, a sales force). Many LANs and WANs are going wireless.

The wireless intranet/extranet and LANs are the wave of the future. They will gradually eliminate their fixed line counterparts. The Internet offers equal, platform-independent, location-independent and time of day - independent access to corporate memory and nervous system. Sophisticated firewall security applications protect the privacy and confidentiality of the intranet from all but the most determined and savvy crackers.

The Intranet is an inter-organizational communication network, constructed on the platform of the Internet and it, therefore, enjoys all its advantages. The extranet is open to clients and suppliers as well.

The company's server can be accessed by anyone authorized, from anywhere, at any time (with local - rather than international - communication costs). The user can leave messages

(internal e-mail or v-mail), access information - proprietary or public - from it, and participate in "virtual teamwork" (see next chapter).

The development of measures to safeguard server routed inter-organizational communication (firewalls) is the solution to one of two obstacles to the institutionalization of Intranets. The second problem is the limited bandwidth which does not permit the efficient transfer of audio (not to mention video).

It is difficult to conduct video conferencing through the Internet. Even the voices of discussants who use internet phones (IP telephony) come out (though very slightly) distorted.

All this did not prevent 95% of the Fortune 1000 from installing intranet. 82% of the rest intend to install one by the end of this year. Medium to big size American firms have 50-100 intranet terminals per every internet one.

One of the greatest advantages of the intranet is the ability to transfer documents between the various parts of an organization. Consider Visa: it pushed 2 million documents per day internally in 1996.

An organization equipped with an intranet can (while protected by firewalls) give its clients or suppliers access to non-classified correspondence, or inventory systems. Many B2B exchanges and industry-specific purchasing management systems are based on extranets.

C. The Transport of Information - Mail and Chat

The Internet (its e-mail function) is eroding traditional mail. 90% of customers with on-line access use e-mail from time to time and 60% work with it regularly. More than 2 billion messages traverse the internet daily.

E-mail applications are available as freeware and are included in all browsers. Thus, the Internet has completely assimilated what used to be a separate service, to the extent that many people make the mistake of thinking that e-mail is a feature of the Internet.

The internet will do to phone calls what it has done to mail. Already there are applications (Intel's, Vocaltec's, Net2Phone) which enable the user to conduct a phone conversation through his computer. The voice quality has improved. The discussants can cut into each others words, argue and listen to tonal nuances. Today, the parties (two or more) engaging in the conversation must possess the same software and the same (computer) hardware. In the very near future, computer-to-regular phone applications will eliminate this requirement. And, again, simultaneous multi-modality: the user can talk over the phone, see his party, send e-mail, receive messages and transfer documents - without obstructing the flow of the conversation.

The cost of transferring voice will become so negligible that free voice traffic is conceivable in 3-5 years. Data traffic will overtake voice traffic by a wide margin.

The next phase will probably involve virtual reality. Each of the parties will be represented by an "avatar", a 3-D figurine generated by the application (or the user's likeness mapped and superimposed on the the avatar). These figurines will be multi-dimensional: they will possess

their own communication patterns, special habits, history, preferences - in short: their own "personality".

Thus, they will be able to maintain an "identity" and a consistent pattern of communication which they will develop over time.

Such a figure could host a site, accept, welcome and guide visitors, all the time bearing their preferences in its electronic "mind". It could narrate the news, like the digital anchor "[Ananova](#)" does. Visiting sites in the future is bound to be a much more pleasant affair.

D. The Transport of Value - E-cash

In 1996, four corporate giants (Visa, MasterCard, Netscape and Microsoft) agreed on a standard for effecting secure payments through the Internet: SET. Internet commerce is supposed to mushroom to \$25 billion by 2003. Site owners will be able to collect rent from passing visitors - or fees for services provided within the site. Amazon instituted an honour system to collect donations from visitors. PayPal provides millions of users with cash substitutes. Gradually, the Internet will compete with central banks and banking systems in money creation and transfer.

E. The Transport of Interactions - The Virtual Organization

The Internet allows for simultaneous communication and the efficient transfer of multimedia (video included) files between an unlimited number of users. This opens up a vista of mind boggling opportunities which are the real core of the Internet revolution: the virtual collaborative ("Follow the Sun") modes.

Examples:

A group of musicians is able to compose music or play it - while spatially and temporally separated;

Advertising agencies are able to co-produce ad campaigns in a real time interaction;

Cinema and TV films are produced from disparate geographical spots through the teamwork of people who never meet, except through the Net.

These examples illustrate the concept of the "virtual community". Space and time will no longer hinder team collaboration, be it scientific, artistic, cultural, or an ad hoc arrangement for the provision of a service (a virtual law firm, or accounting office, or a virtual consultancy network). The intranet can also be thought of as a "virtual organization", or a "virtual business".

The virtual mall and the virtual catalogue are prime examples of spatial and temporal liberation.

In 1998, there were well over 300 active virtual malls on the Internet. In 2000, they were frequented by 46 million shoppers, who shopped in them for goods and services.

The virtual mall is an Internet "space" (pages) wherein "shops" are located. These shops offer their wares using visual, audio and textual means. The visitor passes through a virtual "gate" or storefront and examines the merchandise on offer, until he reaches a buying decision. Then he engages in a feedback process: he pays (with a credit card), buys the product, and waits for it to arrive by mail (or downloads it).

The manufacturers of digital products (intellectual property such as e-books or software) have begun selling their merchandise on-line, as file downloads. Yet, slow communications speeds, competing file formats and reader standards, and limited bandwidth - constrain the growth potential of this mode of sale. Once resolved - intellectual property will be sold directly from the Net, on-line. Until such time, the mediation of the Post Office is still required. As long as this is the state of the art, the virtual mall is nothing but a glorified computerized mail catalogue or Buying Channel, the only difference being the exceptionally varied inventory.

Websites which started as "specialty stores" are fast transforming themselves into multi-purpose virtual malls. Amazon.com, for instance, has bought into a virtual pharmacy and into other virtual businesses. It is now selling music, video, electronics and many other products. It started as a bookstore.

This contrasts with a much more creative idea: the virtual catalogue. It is a form of narrowcasting (as opposed to broadcasting): a surgically accurate targeting of potential consumer audiences. Each group of profiled consumers (no matter how small) is fitted with their own - digitally generated - catalogue. This is updated daily: the variety of wares on offer (adjusted to reflect inventory levels, consumer preferences, and goods in transit) - and prices (sales, discounts, package deals) change in real time. Amazon has incorporated many of these features on its web site. The user enters its web site and there delineates his consumption profile and his preferences. A customized catalogue is immediately generated for him including specific recommendations. The history of his purchases, preferences and responses to feedback questionnaires is accumulated in a database. This intellectual property may well be Amazon's main asset.

There is no technological obstacles to implementing this vision today - only administrative and legal (patent) ones. Big brick and mortar retail stores are not up to processing the flood of data expected to result. They also remain highly sceptical regarding the feasibility of the new medium. And privacy issues prevent data mining or the effective collection and usage of personal data (remember the case of Amazon's "Readers' Circles").

The virtual catalogue is a private case of a new internet off-shoot: the "smart (shopping) agents". These are AI applications with "long memories".

They draw detailed profiles of consumers and users and then suggest purchases and refer to the appropriate sites, catalogues, or virtual malls.

They also provide price comparisons and the new generation cannot be blocked or fooled by using differing product categories.

In the future, these agents will cover also brick and mortar retail chains and, in conjunction with wireless, location-specific services, issue a map of the branch or store closest to an address specified by the user (the default being his residence), or yielded by his GPS enabled

wireless mobile or PDA. This technology can be seen in action in a few music sites on the web and is likely to be dominant with wireless internet appliances. The owner of an internet enabled (third generation) mobile phone is likely to be the target of geographically-specific marketing campaigns, ads and special offers pertaining to his current location (as reported by his GPS - satellite Geographic Positioning System).

F. The Transport of Information - Internet News

Internet news are advantaged. They are frequently and dynamically updated (unlike static print news) and are always accessible (similar to print news), immediate and fresh.

The future will witness a form of interactive news. A special "corner" in the news Web site will accommodate "breaking news" posted by members of the the public (or corporate press releases). This will provide readers with a glimpse into the making of the news, the raw material news are made of. The same technology will be applied to interactive TVs. Content will be downloaded from the internet and displayed as an overlay on the TV screen or in a box in it. The contents downloaded will be directly connected to the TV programming. Thus, the biography and track record of a football player will be displayed during a football match and the history of a country when it gets news coverage.

4. Terra Internetica - Internet, an Unknown Continent

Laymen and experts alike talk about "sites" and "advertising space". Yet, the Internet was never compared to a new continent whose surface is infinite.

The Internet has its own real estate developers and construction companies. The real life equivalents derive their profits from the scarcity of the resource that they exploit - the Internet counterparts derive their profits from the tenants (content producers and distributors, e-tailers, and others).

Entrepreneurs bought "Internet Space" (pages, domain names, portals) and leveraged their acquisition commercially by:

- Renting space out;
- Constructing infrastructure on their property and selling it;
- Providing an intelligent gateway, entry point (portal) to the rest of the internet;
- Selling advertising space which subsidizes the tenants ([Yahoo!-Geocities](#), [Tripod](#) and others);
- Cybersquatting (purchasing specific domain names identical to brand names in the "real" world) and then selling the domain name to an interested party.

Internet Space can be easily purchased or created. The investment is low and getting lower with the introduction of competition in the field of domain registration services and the increase in the number of top domains.

Then, infrastructure can be erected - for a shopping mall, for free home pages, for a portal, or for another purpose. It is precisely this infrastructure that the developer can later sell, lease, franchise, or rent out.

But this real estate bubble was the culmination of a long and tortuous process.

At the beginning, only members of the fringes and the avant-garde (inventors, risk assuming entrepreneurs, gamblers) invest in a new invention. No one knows to say what are the optimal uses of the invention (in other words, what is its future). Many - mostly members of the scientific and business elites - argue that there is no real need for the invention and that it substitutes a new and untried way for old and tried modes of doing the same things (so why assume the risk of investing in the unknown and the untried?).

Moreover, these criticisms are usually well-founded.

To start with, there is, indeed, no need for the new medium. A new medium invents itself - and the need for it. It also generates its own market to satisfy this newly found need.

Two prime examples of this self-recursive process are the personal computer and the compact disc.

When the PC was invented, its uses were completely unclear. Its performance was lacking, its abilities limited, it was unbearably user unfriendly. It suffered from faulty design, was absent any user comfort and ease of use and required considerable professional knowledge to operate. The worst part was that this knowledge was exclusive to the new invention (not portable). It reduced labour mobility and limited one's professional horizons. There were many gripes among workers assigned to tame the new beast. Managers regarded it at best as a nuisance.

The PC was thought of, at the beginning, as a sophisticated gaming machine, an electronic baby-sitter. It included a keyboard, so it was thought of in terms of a glorified typewriter or spreadsheet. It was used mainly as a word processor (and the outlay justified solely on these grounds). The spreadsheet was the first real PC application and it demonstrated the advantages inherent to this new machine (mainly flexibility and speed). Still, it was more of the same. A speedier sliding ruler. After all, said the unconvinced, what was the difference between this and a hand held calculator (some of them already had computing, memory and programming features)?

The PC was recognized as a medium only 30 years after it was invented with the introduction of multimedia software. All this time, the computer continued to spin off markets and secondary markets, needs and professional specialties. The talk as always was centred on how to improve on *existing* markets and solutions.

The Internet is the computer's first important application. Hitherto the computer was only quantitatively different to other computing or gaming devices. Multimedia and the Internet have made it qualitatively superior, sui generis, unique.

Part of the problem was that the Internet was invented, is maintained and is operated by computer professionals. For decades these people have been conditioned to think in Olympic

terms: faster, stronger, higher - not in terms of the new, the unprecedented, or the non-existent. Engineers are trained to improve - seldom to invent. With few exceptions, its creators stumbled across the Internet - it invented itself despite them.

Computer professionals (hardware and software experts alike) - are linear thinkers. The Internet is non linear and modular.

It is still the age of hackers. There is still a lot to be done in improving technological prowess and powers. But their control of the contents is waning and they are being gradually replaced by communicators, creative people, advertising executives, psychologists, venture capitalists, and the totally unpredictable masses who flock to flaunt their home pages and graphomania.

These all are attuned to the user, his mental needs and his information and entertainment preferences.

The compact disc is a different tale. It was intentionally invented to improve upon an existing technology (basically, Edison's Gramophone). Market-wise, this was a major gamble. The improvement was, at first, debatable (many said that the sound quality of the first generation of compact discs was inferior to that of its contemporaneous record players). Consumers had to be convinced to change both software and hardware and to dish out thousands of dollars just to listen to what the manufacturers claimed was more an authentically reproduced sound. A better argument was the longer life of the software (though when contrasted with the limited life expectancy of the consumer, some of the first sales pitches sounded absolutely morbid).

The computer suffered from unclear positioning. The compact disc was very clear as to its main functions - but had a rough time convincing the consumers that it was needed.

Every medium is first controlled by the technical people. Gutenberg was a printer - not a publisher. Yet, he is the world's most famous publisher. The technical cadre is joined by dubious or small-scale entrepreneurs and, together, they establish ventures with no clear vision, market-oriented thinking, or orderly plan of action. The legislator is also dumbfounded and does not grasp what is happening - thus, there is no legislation to regulate the use of the medium. Witness the initial confusion concerning copyrighted vs. licenced software, e-books, and the copyrights of ROM embedded software. Abuse or under-utilization of resources grow. The sale of radio frequencies to the first cellular phone operators in the West - a situation which repeats itself in Eastern and Central Europe nowadays - is an example.

But then more complex transactions - exactly as in real estate in "real life" - begin to emerge. The Internet is likely to converge with "real life". It is likely to be dominated by brick and mortar entities which are likely to import their business methods and management. As its eccentric past (the dot.com boom and the dot.bomb bust) recedes - a sustainable and profitable future awaits it.

APPENDIX: The Map as the New Media Metaphor

Moving images used to be hostages to screens, both large (cinema) and small (television). But, the advent of broadband and the Internet has rendered visuals independent of specific hardware and, therefore, portable. One can watch video on a bewildering array of devices, wired and wireless, and then e-mail the images, embed them in blogs, upload and download

them, store them online ("cloud computing") or offline, and, in general, use them as raw material in mashups or other creative endeavours.

With the aid of set-top boxes such as TiVo's, consumers are no longer dependent on schedules imposed by media companies (broadcasters and cable operators). Time shifting devices - starting with the humble VCR (Video Cassette Recorder) - have altered the equation: one can tape and watch programming later or simply download it from online repositories of content such as YouTube or Hulu when convenient and desirable.

Inevitably, these technological transitions have altered the media experience by fragmenting the market for content. Every viewer now abides by his or her own idiosyncratic program schedule and narrowcasts to "friends" on massive social networks. Everyone is both a market for media and a distribution channel with the added value of his or her commentary, self-generated content, and hyperlinked references.

Mutability cum portability inevitably lead to anarchy. To sort our way through this chaotic mayhem, we have hitherto resorted to search engines, directories, trusted guides, and the like. But, often these Web 1.0 tools fall far short of our needs and expectations. Built to data mine and sift through hierarchical databases, they fail miserably when confronted with multilayered, ever-shifting, chimerical networks of content-spewing multi-user interactions.

The future is in mapping. Maps are the perfect metaphor for our technological age. It is time to discard previous metaphors: the filing cabinet or library (the WIMP GUI - Graphic User Interface - of the personal computer, which included windows, icons, menus, and a pointer) and the screen (the Internet browser).

Cell (mobile) phones will be instrumental in the ascendance of the map. By offering GPS and geolocation services, cellphones are fostering in their users geographical awareness. The leap from maps that refer to the user's location in the real world to maps that relate to the user's coordinates in cyberspace is small and unavoidable. Ultimately, the two will intermesh and overlap: users will derive data from the Internet and superimpose them on their physical environment in order to enhance their experience, or to obtain more and better information regarding objects and people in their surroundings.

[Return](#)

The Solow Paradox

On March 21, 2005, Germany's prestigious Ifo Institute at the University of Munich published a research report according to which "More technology at school can have a detrimental effect on education and computers at home can harm learning".

It is a prime demonstration of the Solow Paradox.

Named after the Nobel laureate in economics, it was stated by him thus: "You can see the computer age everywhere these days, except in the productivity statistics". The venerable economic magazine, "The Economist" in its issue dated July 24th, 1999 quotes the no less venerable Professor Robert Gordon ("one of America's leading authorities on productivity") - p.20:

"...the productivity performance of the manufacturing sector of the United States economy since 1995 has been abysmal rather than admirable. Not only has productivity growth in non-durable manufacturing *decelerated* in 1995-9 compared to 1972-95, but productivity growth in durable manufacturing stripped of computers has *decelerated even more.*"

What should be held true - the hype or the dismal statistics? The answer to this question is of crucial importance to economies in transition. If investment in IT (information technology) actually *RETARDS* growth - then it should be avoided, at least until a functioning marketplace is in place to counter its growth suppressing effects.

The notion that IT retards growth is counter-intuitive. It would seem that, at the very least, computers allow us to do more of the same things only faster. Typing, order processing, inventory management, production processes, number crunching are all tackled more efficiently by computers. Added efficiency should translate into enhanced productivity. Put simply, the same number of people can do more, faster, and more cheaply with computers than without them. Yet reality begs to differ.

Two elements are often neglected in considering the beneficial effects of IT.

First, the concept of information technology comprises two very distinct economic entities: an all-purpose machine (the PC) plus its enabling applications and a medium (the internet). Capital assets are distinct from media assets and are governed by different economic principles. Thus, they should be managed and deployed differently.

Massive, double digit increases in productivity are feasible in the manufacturing of computer hardware. The inevitable outcome is an exponential explosion in computing and networking power. The dual rules which govern IT - Moore's (a doubling of chip capacity and computing prowess every 18 months) and Metcalf's (the exponential increase in a network's processing ability as it encompasses additional computers) - also dictate a breathtaking pace of increased productivity in the hardware cum software aspect of IT. This has been duly detected by

Robert Gordon in his ["Has the 'New Economy' rendered the productivity slowdown obsolete?"](#)

But for this increased productivity to trickle down to the rest of the economy a few conditions have to be met.

The transition from old technologies rendered obsolete by computing to new ones must not involve too much "creative destruction". The costs of getting rid of old hardware, software, of altering management techniques or adopting new ones, of shedding redundant manpower, of searching for new employees to replace the unqualified or unqualifiable, of installing new hardware, software and of training new people in all levels of the corporation are enormous. They must never exceed the added benefits of the newly introduced technology in the long run.

Hence the crux of the debate. Is IT more expensive to introduce, run and maintain than the technologies that it so confidently aims to replace? Will new technologies emerge in a pace sufficient to compensate for the disappearance of old ones? As the technology matures, will it overcome its childhood maladies (lack of operational reliability, bad design, non-specificity, immaturity of the first generation of computer users, absence of user friendliness and so on)?

Moreover, is IT an evolution or a veritable revolution? Does it merely allow us to do more of the same only differently - or does it open up hitherto unheard of vistas for human imagination, entrepreneurship, and creativity? The signals are mixed.

Hitherto, IT did not succeed to do to human endeavour what electricity, the internal combustion engine or even the telegraph have done. It is also not clear at all that IT is a **UNIVERSAL** phenomenon suitable to all business climes and mentalities.

The penetration of both IT and the medium it gave rise to (the internet) is not globally uniform even when adjusting for purchasing power and even among the corporate class. Developing countries should take all this into consideration. Their economies may be too obsolete and hidebound, poor and badly managed to absorb yet another critical change in the form of an IT shock wave. The introduction of IT into an ill-prepared market or corporation can be and often is counter-productive and growth-retarding.

In hindsight, 20 years hence, we might come to understand that computers improved our capacity to do things differently and more productively. But one thing is fast becoming clear. The added benefits of IT are highly sensitive to and dependent upon historical, psychosocial and economic parameters outside the perimeter of the technology itself. When it is introduced, how it is introduced, for which purposes is it put to use and even by whom it is introduced. These largely determine the costs of its introduction and, therefore, its feasibility and contribution to the enhancement of productivity. Developing countries better take note.

Historical Note - The Evolutionary Cycle of New Media

The Internet is cast by its proponents as the great white hope of many a developing and poor country. It is, therefore, instructive to try to predict its future and describe the phases of its possible evolution.

The internet runs on computers but it is related to them in the same way that a TV show is related to a TV set. To bundle two, as it is done today, obscures the true picture and can often be very misleading. For instance: it is close to impossible to measure productivity in the services sector, let alone something as wildly informal and dynamic as the internet.

Moreover, different countries and regions are caught in different parts of the cycle. Central and Eastern Europe have just entered it while northern Europe, some parts of Asia, and North America are in the vanguard.

So, what should developing and poor countries expect to happen to the internet globally and, later, within their own territories? The issue here cannot be cast in terms of productivity. It is better to apply to it the imagery of the business cycle.

It is clear by now that the internet is a medium and, as such, is subject to the evolutionary cycle of its predecessors. Every medium of communications goes through the same evolutionary cycle.

The internet is simply the latest in a series of networks which revolutionized our lives. A century before the internet, the telegraph and the telephone have been similarly heralded as "global" and transforming. The power grid and railways were also greeted with universal enthusiasm and acclaim. But no other network resembled the Internet more than radio (and, later, television).

Every new medium starts with *Anarchy* - or *The Public Phase*.

At this stage, the medium and the resources attached to it are very cheap, accessible, and under no or little regulatory constraint. The public sector steps in: higher education institutions, religious institutions, government, not for profit organizations, non governmental organizations (NGOs), trade unions, etc. Bedeviled by limited financial resources, they regard the new medium as a cost effective way of disseminating their messages.

The Internet was not exempt from this phase which is at its death throes. It was born into utter anarchy in the form of ad hoc computer networks, local networks, and networks spun by organizations (mainly universities and organs of the government such as DARPA, a part of the defence establishment in the USA).

Non commercial entities jumped on the bandwagon and started sewing and patching these computer networks together (an activity fully subsidized with government funds). The result was a globe-spanning web of academic institutions. The American Pentagon stepped in and established the network of all networks, the ARPANET. Other government departments joined the fray, headed by the National Science Foundation (NSF) which withdrew only lately from the Internet.

The Internet (with a different name) became public property - but with access granted only to a select few.

Radio took precisely this course. Radio transmissions started in the USA in 1920. Those were anarchic broadcasts with no discernible regularity. Non commercial organizations and not for profit organizations began their own broadcasts and even created radio broadcasting

infrastructure (albeit of the cheap and local kind) dedicated to their audiences. Trade unions, certain educational institutions and religious groups commenced "public radio" broadcasts.

The anarchic phase is followed by a *commercial* one.

When the users (e.g., listeners in the case of the radio, or owners of PCs and modems in the realm of the Internet) reach a critical mass - businesses become interested. In the name of capitalist ideology (another religion, really) they demand "privatization" of the medium.

In its attempt to take over the new medium, Big Business pull at the heartstrings of modern freemarketry. Deregulating and commercializing the medium would encourage the efficient allocation of resources, the inevitable outcome of untrammelled competition; they would keep in check corruption and inefficiency, naturally associated with the public sector ("Other People's Money" - OPM); they would thwart the ulterior motives of the political class; and they would introduce variety and cater to the tastes and interests of diverse audiences. In short, private enterprise in control of the new medium means more affluence and more democracy.

The end result is the same: the private sector takes over the medium from "below" (makes offers to the owners or operators of the medium that they cannot possibly refuse) - or from "above" (successful lobbying in the corridors of power leads to the legislated privatization of the medium).

Every privatization - especially that of a medium - provokes public opposition. There are (usually founded) suspicions that the interests of the public were compromised and sacrificed on the altar of commercialization and rating. Fears of monopolization and cartelization of the medium are evoked - and proven correct, in the long run. Otherwise, the concentration of control of the medium in a few hands is criticized. All these things do happen - but the pace is so slow that the initial apprehension is forgotten and public attention reverts to fresher issues.

Again, consider the precedent of the public airwaves.

A new Communications Act was legislated in the USA in 1934. It was meant to transform radio frequencies into a national resource to be sold to the private sector which will use it to transmit radio signals to receivers. In other words: the radio was passed on to private and commercial hands. Public radio was doomed to be marginalized.

From the radio to the Internet:

The American administration withdrew from its last major involvement in the Internet in April 1995, when the NSF ceased to finance some of the networks and, thus, privatized its hitherto heavy involvement in the Net.

The Communications Act of 1996 envisaged a form of "organized anarchy". It allowed media operators to invade each other's turf.

Phone companies were allowed to transmit video and cable companies were allowed to transmit telephony, for instance. This is all phased over a long period of time - still, it is a

revolution whose magnitude is difficult to gauge and whose consequences defy imagination. It carries an equally momentous price tag - official censorship.

Merely "voluntary censorship", to be sure and coupled with toothless standardization and enforcement authorities - still, a censorship with its own institutions to boot. The private sector reacted by threatening litigation - but, beneath the surface it is caving in to pressure and temptation, constructing its own censorship codes both in the cable and in the internet media.

The third phase is *Institutionalization*.

It is characterized by enhanced legislation. Legislators, on all levels, discover the medium and lurch at it passionately. Resources which were considered "free", suddenly are transformed to "national treasures not to be dispensed with cheaply, casually and with frivolity".

It is conceivable that certain parts of the Internet will be "nationalized" (for instance, in the form of a licensing requirement) and tendered to the private sector. Legislation may be enacted which will deal with permitted and disallowed content (obscenity? incitement? racial or gender bias?).

No medium in the USA (or elsewhere) has eschewed such legislation. There are sure to be demands to allocate time (or space, or software, or content, or hardware, or bandwidth) to "minorities", to "public affairs", to "community business". This is a tax that the business sector will have to pay to fend off the eager legislator and his nuisance value.

All this is bound to lead to a monopolization of hosts and servers. The important broadcast channels will diminish in number and be subjected to severe content restrictions. Sites which will not succumb to these requirements - will be deleted or neutralized. Content guidelines (euphemism for censorship) exist, even as we write, in all major content providers (AOL, Yahoo, Lycos).

The last, determining, phase is *The Bloodbath*.

This is the phase of consolidation. The number of players is severely reduced. The number of browser types is limited to 2-3 (Mozilla, Microsoft and which else?). Networks merge to form privately owned mega-networks. Servers merge to form hyper-servers run on supercomputers or computer farms. The number of ISPs is considerably diminished.

50 companies ruled the greater part of the media markets in the USA in 1983. The number in 1995 was 18. At the end of the century they numbered 6.

This is the stage when companies - fighting for financial survival - strive to acquire as many users/listeners/viewers as possible. The programming is dumbed down, aspiring to the lowest (and widest) common denominator. Shallow programming dominates as long as the bloodbath proceeds.

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Decision Support Systems

Many companies in developing countries have a very detailed reporting system going down to the level of a single product, a single supplier, a single day. However, these reports – which are normally provided to the General Manager - should not, in my view, be used by them at all. They are too detailed and, thus, tend to obscure the true picture. A General Manager must have a bird's eye view of his company. He must be alerted to unusual happenings, disturbing financial data and other irregularities.

As things stand now, the following phenomena could happen:

- a. That the management will highly leverage the company by assuming excessive debts burdening the cash flow of the company and / or
- b. That a false Profit and Loss (PNL) picture will emerge - both on the single product level - and generally. This could lead to wrong decision making, based on wrong data.
- c. That the company will pay excessive taxes on its earnings and / or
- d. That the inventory will not be fully controlled and appraised centrally and / or
- e. That the wrong cash flow picture will distort the decisions of the management and lead to wrong (even to dangerous) decisions.

To assist in overcoming the above, there are four levels of reporting and flows of data which every company should institute:

The first level is the annual budget of the company which is really a business plan. The budget allocates amounts of money to every activity and / or department of the firm.

As time passes, the actual expenditures are compared to the budget in a feedback loop. During the year, or at the end of the fiscal year, the firm generates its financial statements: the income statement, the balance sheet, the cash flow statement.

Put together, these four documents are the formal edifice of the firm's finances. However, they can not serve as day to day guides to the General Manager.

The second tier of financial audit and control is when the finance department (equipped with proper software – Solomon IV is the most widely used in the West) is able to produce pro forma financial statements monthly.

These financial statements, however inaccurate, provide a better sense of the dynamics of the operation and should be constructed on the basis of Western accounting principles (GAAP and FASBs, or IAS).

But the Manager should be able to open this computer daily and receive two kinds of data, fully updated and fully integrated:

1. Daily financial statements;
2. Daily ratios report.

The daily financial statements

The Manager should have access to continuously updated statements of income, cash flow, and a balance sheet. The most important statement is that of the cash flow. The manager should be able to know, at each and every stage, what his real cash situation is - as opposed to the theoretical cash situation which includes accounts payable and account receivable in the form of expenses and income.

These pro forma financial statements should include all the future flows of money - whether invoiced or not. This way, the Manager will be able to type a future date into his computer and get the financial reports and statements relating to that date.

In other words, the Manager will not be able to see only a present situation of his company, but its future situation, fully analysed and fully updated.

Using today's technology - a wireless-connected laptop – managers are able to access all these data from anywhere in the world, from home, while traveling, and so on.

The daily ratios report

This is the most important part of the decision support system.

It enables the Manager to instantly analyse dozens of important aspects of the functioning of his company. It allows him to compare the behaviour of these parameters to historical data and to simulate the future functioning of his company under different scenarios.

It also allows him to compare the performance of his company to the performance of his competitors, other firms in his branch and to the overall performance of the industry that he is operating in.

The Manager can review these financial and production ratios. Where there is a strong deviation from historical patterns, or where the ratios warn about problems in the future – management intervention may be required.

Instead of sifting through mountains of documents, the Manager will only have to look at four computer screens in the morning, spot the alerts, read the explanations offered by the software, check what is happening and better prepare himself for the future.

Examples of the ratios to be included in the decision system

- a. *SUE measure* - deviation of actual profits from expected profits;
- b. *ROE* - the return on the adjusted equity capital;
- c. *Debt to equity* ratios;

- d. **ROA** - the return on the assets;
- e. The **financial average**;
- f. **ROS** - the profit margin on the sales;
- g. **ATO** - asset turnover, how efficiently assets are used;
- h. **Tax burden and interest burden** ratios;
- i. **Compounded leverage**;
- j. **Sales to fixed assets** ratios;
- k. **Inventory turnover** ratios;
- l. **Days receivable and days payable**;
- m. **Current ratio, quick ratio, interest coverage ratio** and other liquidity and coverage ratios;
- n. **Valuation price** ratios;
and many others.

The effects of using a decision system

A decision system has great impact on the profits of the company. It forces the management to rationalize the depreciation, inventory and inflation policies. It warns the management against impending crises and problems in the company. It specially helps in following areas:

1. The management knows exactly how much credit it could take, for how long (for which maturities) and in which interest rate. It has been proven that without proper feedback, managers tend to take too much credit and burden the cash flow of their companies.
2. A decision system allows for careful financial planning and tax planning. Profits go up, non cash outlays are controlled, tax liabilities are minimized and cash flows are maintained positive throughout.
3. As a result of all the above effects the value of the company grows and its shares appreciate.
4. The decision system is an integral part of financial management in the West. It is completely compatible with western accounting methods and derives all the data that it needs from information extant in the company.

So, the establishment of a decision system does not hinder the functioning of the company in any way and does not interfere with the authority and functioning of the financial department.

Decision Support Systems cost as little as 20,000 USD (all included: software, hardware, and training). They are one of the best investments that a firm can make.

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Education and the Internet as Public Goods

"We must not believe the many, who say that only free people ought to be educated, but we should rather believe the philosophers who say that only the educated are free."

-- Epictetus (AD 55?-135?), Greek Stoic philosopher

I. Public Goods, Private Goods

Contrary to common misconceptions, public goods are not "goods provided by the public" (read: by the government). Public goods are sometimes supplied by the private sector and private goods - by the public sector. It is the contention of this essay that technology is blurring the distinction between these two types of goods and rendering it obsolete.

Pure public goods are characterized by:

I. **Nonrivalry** - the cost of extending the service or providing the good to another person is (close to) zero.

Most products are rivalrous (scarce) - zero sum games. Having been consumed, they are gone and are not available to others. Public goods, in contrast, are accessible to growing numbers of people without any additional marginal cost. This wide dispersion of benefits renders them unsuitable for private entrepreneurship. It is impossible to recapture the full returns they engender. As Samuelson observed, they are extreme forms of positive externalities (spillover effects).

II. **Nonexcludability** - it is impossible to exclude anyone from enjoying the benefits of a public good, or from defraying its costs (positive and negative externalities). Neither can anyone willingly exclude himself from their remit.

III. **Externalities** - public goods impose costs or benefits on others - individuals or firms - outside the marketplace and their effects are only partially reflected in prices and the market transactions. As Musgrave pointed out (1969), externalities are the other face of nonrivalry.

The usual examples for public goods are lighthouses - famously questioned by one Nobel Prize winner, Ronald Coase, and defended by another, Paul Samuelson - national defense, the GPS navigation system, vaccination programs, dams, and public art (such as park concerts).

It is evident that public goods are not necessarily provided or financed by public institutions. But governments frequently intervene to reverse market failures (i.e., when the markets fail to provide goods and services) or to reduce transaction costs so as to enhance consumption or supply and, thus, positive externalities. Governments, for instance, provide preventive care - a non-profitable healthcare niche - and subsidize education because they have an overall positive social effect.

Moreover, pure public goods do not exist, with the possible exception of national defense. Samuelson himself suggested [Samuelson, P.A - Diagrammatic Exposition of a Theory of Public Expenditure - Review of Economics and Statistics, 37 (1955), 350-56]:

"... Many - though not all - of the realistic cases of government activity can be fruitfully analyzed as some kind of a blend of these two extreme polar cases" (p. 350) - mixtures of private and public goods. (Education, the courts, public defense, highway programs, police and fire protection have an) "element of variability in the benefit that can go to one citizen at the expense of some other citizen" (p. 356).

From Pickhardt, Michael's paper titled *"Fifty Years after Samuelson's 'The Pure Theory of Public Expenditure': What Are We Left With?":*

"... It seems that rivalry and nonrivalry are supposed to reflect this "element of variability" and hint at a continuum of goods that ranges from wholly rival to wholly nonrival ones. In particular, Musgrave (1969, p. 126 and pp. 134-35) writes:

"The condition of non-rivalness in consumption (or, which is the same, the existence of beneficial consumption externalities) means that the same physical output (the fruits of the same factor input) is enjoyed by both A and B. This does not mean that the same subjective benefit must be derived, or even that precisely the same product quality is available to both. (...) Due to non-rivalness of consumption, individual demand curves are added vertically, rather than horizontally as in the case of private goods".

"The preceding discussion has dealt with the case of a pure social good, i.e. a good the benefits of which are wholly non-rival. This approach has been subject to the criticism that this case does not exist, or, if at all, applies to defence only; and in fact most goods which give rise to private benefits also involve externalities in varying degrees and hence combine both social and private good characteristics' ".

II. The Transformative Nature of Technology

It would seem that knowledge - or, rather, technology - is a public good as it is nonrival, nonexcludable, and has positive externalities. The New Growth Theory (theory of endogenous technological change) emphasizes these "natural" qualities of technology.

The application of Intellectual Property Rights (IPR) alters the nature of technology from public to private good by introducing excludability, though not rivalry. Put more simply, technology is "expensive to produce and cheap to reproduce". By imposing licensing demands on consumers, it is made exclusive, though it still remains nonrivalrous (can be copied endlessly without being diminished).

Yet, even encumbered by IPR, technology is transformative. It converts some public goods into private ones and vice versa.

Consider highways - hitherto quintessential public goods. The introduction of advanced "on the fly" identification and billing (toll) systems reduced transaction costs so dramatically that privately-owned and operated highways are now common in many Western countries. This is an example of a public good gradually going private.

Books reify the converse trend - from private to public goods. Print books - undoubtedly a private good - are now available online free of charge for download. Online public domain books are a nonrivalrous, nonexcludable good with positive externalities - in other words, a pure public good.

III. Is Education a Public Good?

Education used to be a private good with positive externalities. Thanks to technology and government largesse it is no longer the case. It is being transformed into a nonpure public good.

Technology-borne education is nonrivalrous and, like its traditional counterpart, has positive externalities. It can be replicated and disseminated virtually cost-free to the next consumer through the Internet, television, radio, and on magnetic media. MIT has recently placed 500 of its courses online and made them freely accessible. Distance learning is spreading like wildfire. Webcasts can host - in principle - unlimited amounts of students.

Yet, all forms of education are exclusionary, at least in principle. It is impossible to exclude a citizen from the benefits of his country's national defense, or those of his country's dam. It is perfectly feasible to exclude would be students from access to education - both online and offline.

This caveat, however, equally applies to other goods universally recognized as public. It is possible to exclude certain members of the population from being vaccinated, for instance - or from attending a public concert in the park.

Other public goods require an initial investment (the price-exclusion principle demanded by Musgrave in 1959, does apply at times). One can hardly benefit from the weather forecasts without owning a radio or a television set - which would immediately tend to exclude the homeless and the rural poor in many countries. It is even conceivable to extend the benefits of national defense selectively and to exclude parts of the population, as the Second World War has taught some minorities all too well.

Nor is strict nonrivalry possible - at least not simultaneously, as Musgrave observed (1959, 1969). Our world is finite - and so is everything in it. The economic fundament of scarcity applies universally - and public goods are not exempt. There are only so many people who can attend a concert in the park, only so many ships can be guided by a lighthouse, only so many people defended by the army and police. This is called "crowding" and amounts to the exclusion of potential beneficiaries (the theories of "jurisdictions" and "clubs" deal with this problem).

Nonrivalry and nonexcludability are ideals - not realities. They apply strictly only to the sunlight. As environmentalists keep warning us, even the air is a scarce commodity. Technology gradually helps render many goods and services - books and education, to name two - asymptotically nonrivalrous and nonexcludable.

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The Ghost in the Net
Technology and Liberty in the Writings of Lewis Mumford

An Epistolary Dialogue Between
Roberto Calvo Macias and [Dr. Sam Vaknin](#)

However far modern science and technology have fallen short of their inherent possibilities, they have taught mankind at least one lesson: Nothing is impossible.

Today, the degradation of the inner life is symbolized by the fact that the only place sacred from interruption is the private toilet.

By his very success in inventing laboursaving devices, modern man has manufactured an abyss of boredom that only the privileged classes in earlier civilizations have ever fathomed.

For most Americans, progress means accepting what is new because it is new, and discarding what is old because it is old.

I would die happy if I knew that on my tombstone could be written these words, "This man was an absolute fool. None of the disastrous things that he reluctantly predicted ever came to pass!"

Lewis Mumford (1895-1990)

Dear Sam,

We begin our series on great personalities of the 20th century with Lewis Mumford. Of course, this is only an excuse to develop our own ideas. Those who are interested in the ideas of "our" characters can go to the nearest bookstore and read directly from the fountain. Anyway, for the sake of those who are not acquainted with Mumford, I will draw a brief biography.

Lewis Mumford was born in 1895 (the same year X-rays were discovered by Roentgen and the Dreyfus affair was another significant "success"). Mumford started his career in the US Patent Office (overseeing "cement and concrete"), which gave him a first person insight into technological innovation processes. Later he made contact with his late master Patrick Geddes (and other great thinkers like Victor Branford). These encounters converted him into a generalist. His writing career extended over six decades in which he made significant contributions to the literature of history, philosophy, art, and architectural criticism. Perhaps best known for his work on urban planning and the study of technology, Mumford was co-founder of the Regional Planning Association of America and, for 32 years, wrote the "Sky Line" column on architecture for the New Yorker. He served on the faculties of several institutions, including Stanford university, the University of Pennsylvania, and MIT, and was

appointed to the New York City Board of Higher Education. He received many awards, as the National Medal for Literature and The National Medal for the Arts.

His first literary work was "The Story of Utopias", which advanced one of the major themes of his life: the utopian (technological) literature and its impact on human development. After some other minor works (which included a beautiful book on Herman Melville, 1929), he published his first great opus, "Technics and Civilization (1934)", one of the first historical works on technology. It was even incorporated in the curricula of technological institutes, like Cal tech, the first technological university to have a historical course. This book was, though with some doubts, technologically oriented. After the war, his point of view, regarding this as well as other matters, changed somewhat. In 1938 he presented "The Culture of Cities", the first work pertaining to the other leitmotif of his life: urbanism and architecture. In the forties and fifties, Mumford produced several works on the "human condition", sanity, city development and arts. In 1961 appeared another major work of his, "The city in History", a complete survey of the city and its cycles.

In the "decisive years", during the sixties, Mumford wrote, in our humble opinion, his major work: "The Myth of the Machine". It was partly based on the ideas of Oswald Spengler as refined by Alfred Toynbee, and, distilling nearly sixty years of investigation, Lewis Mumford brings to a head his radical revisions of the stale popular conceptions of human and technological progress. "The Myth" is a fully developed historical explanation of the irrationalities that have undermined the highest achievements of modern technology - speed, mass production, automation, instant communication, and remote control. These have inevitably brought about pollution, waste, ecological disruption and human extermination. And he makes a comparison - part historical and part artistic - between the state machine of the Pyramid Age and the global cybernetic techno-machine of our "strange days" (the Pentagon of Power).

As the generalist work of Mumford covers practically all fields of knowledge, I propose to you to focus our dialogue on the problem of technology and life (with some linkage to his other major field: urbanism). Indeed, this is a hot topic nowadays (the "mad cow disease" issue).

Highlights of this theme are:

1. Mumford discussion of cybernetics and the "automation of automation" (Wiener);
2. Mumford's polemics with McLuhan and the audio-visual tribe - a humbug, in LM words;
3. And especially, his proposal to change the actual mega-technology into the life plenitude of organic polytechnology - anticipating the ecological views of today.

As you are interested in technological media (i.e. [your essay on the Internet](#)), here is a first strike courtesy Mr. Mumford:

"... It is to replace human autonomy in every form by an up-to-date electronic model of the mega machine. The mass media, he demonstrates, are 'put out before they are thought out'. In fact, 'their being put out tends to cancel the possibility of their being thought out at all'.

Precisely. Here McLuhan gives the whole show away. Because every technical apparatus is an extension of man's bodily organs, including his brain, this peripheral structure, by McLuhan's analysis, must, by its very mass and ubiquity, replace all autonomous needs or desires: since now for us 'technology is a part our bodies', no detachment or divorce is possible. 'Once we have surrendered our senses and nervous systems to the private manipulations of those who would try to benefit from taking a lease on our eyes and ears and nerves, we don't really have any rights (read autonomy) left' ".

"This latter point might well be taken as a warning to disengage ourselves, as soon as possible, from the power system so menacingly described: for McLuhan it leads, rather, to a demand for unconditional surrender. 'Under electric technology', he observes, 'the entire business of man becomes learning and knowing'. Apart from the fact that this is a pathetically academic picture of the potentialities of man, the kind of learning and knowing that McLuhan becomes enraptured over is precisely that which can be programmed on a computer: 'We are now in position...', he observes, 'to transfer the entire show to the memory of a computer'. No better formula could be found for arresting and ultimately suppressing human development..."

Well, this is my opening movement, Your turn, Mr. Vaknin.

Dear RCM,

Good to renew our dialogues. I will get straight to the point, or, rather, to the points. I intend to deal with each and every one of them extensively - but, as is our habit, I am just mapping the territory.

1. Is it meaningful to discuss technology separate from life, as opposed to life, or compared to life? Is it not the inevitable product of life, a determinant of life and part of its definition? Francis Bacon and, centuries later, the visionary Ernst Kapp, thought of technology as a means to conquer and master nature - an expression of the classic dichotomy between observer and observed. But there could be other ways of looking at it (consider, for instance, the seminal work of Friedrich Dessauer). Kapp was the first to talk of technology as "organ projection" (preceding McLuhan by more than a century). Freud wrote in "Civilization and its Discontents": "Man has, as it were, become a kind of prosthetic god. When he puts on all his auxiliary organs he is truly magnificent; but those organs have not grown on to him and they still give him much trouble at times."

2. On the whole, has technology contributed to human development or arrested it?

3. Even if we accept that technology is alien to life, a foreign implant and a potential menace - what frame of reference can accommodate the new convergence between life and technology (mainly medical technology and biotechnology)? What are cyborgs - life or technology? What about clones? Artificial implants? Life sustaining devices (like heart-kidney machines)? Future implants of chips in human brains? Designer babies, tailored to specifications by genetic engineering? What about ARTIFICIAL intelligence?

4. Is technology IN-human or A-human? In other words, are the main, immutable and dominant attributes of technology alien to humans, to the human spirit, or to the human brain? Is this possible at all? Is such non-human technology likely to be developed by artificial

intelligence machines in the future? Finally, is this kind of technology automatically ANTI-human as well? Mumford's classification of all technologies to polytechnic (human-friendly) and monotechnic (human averse) springs to mind.

5. Is the impact technology has on the INDIVIDUAL necessarily identical or even comparable to the impact it has on human collectives and societies? Think Internet - the answer in this case is clearly NEGATIVE.

6. Is it possible to define what is technology at all?

If we adopt Monsma's definition of technology (1986) as "the systematic treatment of an art" - is art to be treated as a variant of technology? Robert Merton's definition is a non-definition because it is so broad it encompasses all teleological human actions: "any complex of standardized means for attaining a predetermined result". Jacques Ellul resorted to tautology: "the totality of methods rationally arrived at and having absolute efficiency in every field of human activity" (1964). H.D. Lasswell (whose work is mainly media-related) proffered an operative definition: "the ensemble of practices by which one uses available resources to achieve certain valued ends". It is clear how unclear and indefensible these definitions are.

7. The use of technology involves choices and the exercise of free will. Does technology enhance our ability to exercise free will - or does it detract from it? Is there an inherent and insolvable contradiction between technology and ethical and moral percepts? Put more simply: is technology inherently unethical and immoral or a-moral? If so, is it fatalistic, or deterministic, as Thurstein Veblen suggested (in "Engineers and the Price System")? To rephrase the question; does technology DETERMINE our choices and actions? Does it CONSTRAIN our possibilities and LIMIT our potentials? We are all acquainted with utopias (and dystopias) based on technological advances (just recall the millenarian fervour with which electricity, the telegraph, railways, the radio, television and the Internet were greeted). Technology seems to shape cultures, societies, ideals and expectations. It is an ACTIVE participant in social dynamics. This is the essence of Mumford's "megamachine", the "rigid, hierarchical social organization". Contrast this with Dessauer's view of technology as a kind of moral and aesthetic statement or doing, a direct way of interacting with things-in-themselves. The latter's views place technology neatly in the Kantian framework of categorical imperatives.

8. Is technology IN ITSELF neutral? Can the undeniable harm caused by technology be caused, as McLuhan put it, by HUMAN mis-use and abuse: "[It] is not that there is anything good or bad about [technology] but that unconsciousness of the effect of any force is a disaster, especially a force that we have made ourselves". If so, why blame technology and exonerate ourselves? Displacing the blame is a classic psychological defence mechanism but it leads to fatal behavioural rigidities and pathological thinking.

Sam

Note: Primary Technology, Consumer Technology, and World Peace

Paradigm shifts in science and revolutionary leaps in technology are frequently coterminous with political and military upheavals. The dust usually requires three centuries to settle. Such seismic waves and tectonic shifts occurred between the 12th and 14th centuries AD, again

starting with the 15th and ending in the 17th century AD, and, most recently, commencing in the 19th century and still very much unfolding.

These quakes portend the emergence of new organizing principles and novel threats. Power shifts from one set of players and agents to another. And the scope and impact of the cataclysm increases until it peaks with the last vestiges of the cycle.

Thus, in the current round (19th-21st centuries AD), polities shifted from Empires to [Nation-states](#) and economies from [colonialism-mercantilism](#) to capitalism: a new order founded on new systems and principles. Industrialized warfare and networked [terrorism](#) emerged as the latest threats. Ochlocracies and democracies supplanted the rule of various [elites](#) and crowds of laymen lay siege to the hitherto unchallenged superiority and leadership of [experts](#). Finally, starting in the late 19th century, globalization replaced localization everywhere.

Why this confluence of scientific-technological phase transitions and political-military tumults?

There are three possible explanations:

(I) Scientific and technological innovations presage political and military realignments, rather as prequakes forewarn of full-fledged earthquakes. Thus, at the beginning of the twentieth century, physical theories, such as Relativity and [Quantum Mechanics](#) reflected a gathering political and military storm in an increasingly uncertain and kaleidoscopic world. Or ...

(II) Scientific and technological innovations cause political and military realignments

Still, many technologies - from the GPS to the Internet and from antibiotics to plastics - were hatched in state-owned laboratories and numerous scientific advances were spurred on and financed by the military-industrial complex. Science and technology in the 20th century seem to be the brainchildren, not the progenitors of the political and martial establishments.

It seems, therefore, that **Scientific and technological innovations move in tandem with political and military realignments**. Instability, competition, and conflict are the principles that underlie our political philosophy (liberal democracy), economic worldview (Darwinian capitalism), and personal conduct within our anomic societies. It would have been shocking had they failed to permeate our science and technology as well. As people change one dimension of their environment (let's say, their political system), all other parameters are instantaneously affected as well. Science, technology, politics, and warfare resonate and influence each other all the time. Hence the aforementioned synchronicity.

But, what are the **transmission mechanisms** between science-technology and politics-military? How is a tremor in one sphere communicated to the other?

First, we must distinguish between **primary and consumer technologies**.

Primary technologies are purely military, industrial, commercial, and large-scale. As primary technologies mature, they are invariably converted into consumer technologies. Primary technologies are disempowering, inaccessible, societal (cater to the needs of the

society in which they were developed and within which they are deployed), concentrated in the hands of the few, self-contained, focused (goal-oriented), and largely localized (aim to function and yield results locally).

Consumer technologies are the exact obverse of their primary counterparts: by design, they empower the user, are ubiquitous, cater to the needs of individuals, are distributed and redundant, collaborative, emphasize multitasking, and are global.

Science and technology interact with politics and the military along **two pathways**:

(I) Established structures are rarely undermined by the mere invention or even deployment of a new technology. It is the **shift from primary technology to consumer technology** that rattles them. Primary technologies are used by interest groups and power centers to preserve their monopoly of resources and the decision-making processes that determine their allocation. Primary technologies are always in favor of the existing order and are, therefore, conservative. In contrast, consumer technologies grant erstwhile outsiders access to these cherished commodities. Consumer technologies are, therefore, by definition, radical and transformative.

(II) But, the masses are not always content to await their turn while the elites reap the considerable rewards of their first mover status and old-boy-network clubbish advantages. Sometimes the mob demands instant use, or even control of primary technologies. Such revolutionary spasms "compress" historical processes and render primary technologies consumer technologies by dint of the mob's ability to access and manipulate them.

If so, how come we have known periods of tranquility, prosperity, and flourishing of the arts and sciences? Why hasn't history been reduced to a semipternal dogfight between haves and have nots?

The answer is: the mitigating effects of consumer technologies.

Whichever the pathway, once consumer technology is widespread, it becomes a conservative and stabilizing force. Consumers in possession of (often expensive) consumer technologies have a vested interest in the established order: property rights, personal safety, the proper functioning of institutions and producers, and so on.

Consumers wish to guarantee their access to future generations of consumer technologies as well as their unfettered ability to enjoy and make use of the current crop of gadgets and knowledge. To do so, leisure time and wealth formation and accumulation are prerequisites. Both are impossible in a chaotic society. Consumers are "tamed", "domesticated", and "pacified" by their ownership of the very technologies that they had fought to obtain.

Similarly, developers, creators, inventors, and investors require a peaceful, predictable, [just](#), [fair](#), and functional environment to continue to churn out technological innovations. Consumers are aware of that. While inclined to "free rider" behavior in the "Commons", most consumers are willing to trade hard cash and personal freedom for the future availability of their favorite toys and content.

Consumer then form an alliance with all other stakeholders in society to guarantee a prolonged period of status quo. Such intermezzos last centuries until, somehow, the deficiencies and imperfections of the system lead to its eventual breakdown and to the eruption of new ideas, new [disruptive technologies](#), creative destruction, and political and military challenges as new players enter the scene and old ones refuse to exit without a fight.

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Wanted: An East European Ataturk

The Cyrillic Alphabet as an Obstacle to Economic Development

Also published by United Press International (UPI)

In November 2002, Citibank became the first American bank to open a retail operation in Russia, replete with phone and Internet banking. It offered middle-class Russian clients in Moscow and St. Petersburg both ruble and dollar accounts, overdraft and loan facilities in both currencies, and even debit - though no credit - cards. Murky laws regarding ownership of real estate had initially preclude mortgages. Citibank already managed some corporate business in Russia with a modest asset portfolio of c. \$1 billion.

According to the Russian headquarters of the bank, the price tag of opening the branch reached "several million dollars". Most of it was to convert the bank's global systems to the 33-letters Cyrillic alphabet. This is an illustration of the hidden business costs incurred by preferring the idiosyncratic Slavic script to the widely used Latin one.

The peoples of eastern Europe have little left except their character set. Their industry dilapidated, their politics venal and acrimonious, their standard of living dismal, their society disintegrating, and their national identities often fragile - they cling fiercely to their "historical" myths and calligraphic lettering, the last vestiges of long-gone grandeur. Bulgarians, Greeks, and Macedonians still argue rancorously about the ethnic affiliation of the 9th century inventors of the Cyrillic symbols - the eponymous Saint Cyril and his brother, Saint Methodius.

Russian news agencies reported that on November 15, 2002 the Duma passed an amendment to the Law on the Languages of the Peoples of the Russian Federation, making the Cyrillic alphabet mandatory, though not exclusive. The use of other scripts is hence subject to the enactment case-by-case federal laws.

Many of Russia's numerous constituent republics and countless ethnic minorities are unhappy. The Tatars, for instance, have been using the Latin script since September 2001. Cyrillic characters in Tatarstan are due to be phased out in 2011. The republic of Karelia, next to the Finnish border, has been using Latin letters exclusively and would also be adversely affected.

Prominent Tatars - and the Moscow-based Center for Journalism in Extreme Situations - have taken to calling the amendment a violation of human rights and of the constitution. This, surely, is somewhat overdone. The new statute is easy to circumvent. A loophole in the law would allow, for instance, the use of non-Cyrillic alphabets for non-state languages.

The economic implications of an obscure script were well grasped by Kemal Ataturk, the founder of modern Turkey. He was fond of saying that "the cornerstone of education is an easy system of reading and writing. The key to this is the new Turkish alphabet based on the Latin script." In 1928, he replaced the cumbersome Arabic script with a Latinized version of Turkish. Literacy shot up and access to a wealth of educational and cultural material was secured.

Yet, many Slav scholars point out that other countries - like Israel, Japan and China - have chosen to tenaciously preserve their ancient alphabets. It did not seem to affect their economic ascendance.

Moreover, scriptural conversion is bound to be as costly as preserving the old letters: the transcription of archives and contracts; the reprinting of textbooks and periodicals; the recoding of software and electronic documents; the purchase of new typeset machines; the training of printers, authors, journalists, judges, teachers, bureaucrats, the populace; the changing of road signs and computer keyboards; the re-posting of Web sites and the development of fonts. And this is a - very - partial list.

To burnish his nationalist credentials, during the election campaign in Bulgaria in 2001, the incumbent president, Petar Stoyanov, distanced himself from a suggestion made by professor Otto Kronsteiner, an Austrian professor of Bulgarian studies, who advocates swapping the Cyrillic character set for the Latin one.

Similarly, Macedonian negotiators insisted, during the negotiations leading to the August 2001 Ohrid Framework Agreement which terminated the Albanian uprising, on maintaining the Macedonian language and the Cyrillic alphabet as the only official ones.

The Prime Minister of Macedonia, [Nikola Gruevski](#), often engages in ostentatious religious and nationalistic posturing. Wounded by Greek intransigence over the name issue (should the Republic of Macedonia be allowed to use its constitutional name or not) and by Bulgaria's insistence that Macedonians are merely culturally-inferior Bulgarians, Macedonians react well to his message.

Thus, in April 2008, MIA, the Macedonian Information Agency, embarked on yet another campaign, titled: "I preserve what is mine - while I write using Cyrillic alphabet - I exist!".

But the dominance of English is forcing even the most fervent nationalists to adopt. Moldova has reinstated Romanian and its Latin alphabet as the state language in 1989. Even the Inuit of Russia, Canada, Greenland and Alaska are discussing a common alphabet for their 7000-years old Inuktitut language.

According to the Khabar news agency, Kazakhstan, following the footsteps of Uzbekistan and Turkmenistan, is in the throes of reverting to Latin script. Kazakh officials cited the trouble-free use of computers and the Internet as a major advantage of dumping the Cyrillic alphabet.

It would also insulate Kazakhstan from the overbearing Russians next door. But this is a two-edged sword. In August 2001, the Azeri government suspended the publication of the weekly Impulse for refusing to switch from Soviet-era Cyrillic to Latin.

The periodical's hapless owner protested that no one is able to decipher the newly introduced Latin script. Illiteracy has surged as a result and Russian citizens of Azerbaijan feel alienated and discriminated against. Recently Latinized former satellites of the Soviet Union seem to have been severed from the entire body of Russian culture, science and education.

Fervid protestations to the contrary notwithstanding, Cyrillic lettering is a barrier. NASA published in 2001 the logbooks of the astronauts aboard the International Space Station. The entries for Nov 25, 2000 and January read: "Sergei (Krikalev) discusses some problems with the way (Microsoft) Windows is handling Cyrillic fonts ... Sergei is still having difficulties with his e-mail. After the mail sync, he still has 'outgoing' mail left instead of everything in the 'sent' folder."

It took Microsoft more than two years to embark on a localization process of the Windows XP Professional operating system and the Office Suite in Serbia where the Cyrillic alphabet is still widely used. Even so, the first version was in Latin letters. Cyrillic characters were introduced "in the next version". A Cyrillic version has been available in Bulgaria since October 2001 after protracted meetings between Bulgarian officials and Microsoft executives.

The Board for the Standardization of the Serbian Language and the Serbian National Library, aware of the Cyrillic impediment are studying "ways of increasing the use of Serbian language and the Cyrillic alphabet in modern communications, especially the Internet".

But the dual use of Latin and Cyrillic scripts - at least in official documents - is spreading. Bosnia-Herzegovina has recently decided to grant its citizens the freedom to choose between the two on their secure identity cards. The triumph of the Latin script seems inevitable, whether sanctioned by officialdom or not.

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The Industrious Spies

Industrial Espionage in the Digital Age

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The Web site of GURPS (Generic Universal Role Playing System) lists 18 "state of the art equipments (sic) used for advanced spying". These include binoculars to read lips, voice activated bugs, electronic imaging devices, computer taps, electromagnetic induction detectors, acoustic stethoscopes, fiber optic scopes, detectors of acoustic emissions (e.g., of printers), laser mikes that can decipher and amplify voice-activated vibrations of windows, and other James Bond gear.

Such contraptions are an integral part of industrial espionage. The American Society for Industrial Security (ASIC) estimated a few years ago that the damage caused by economic or commercial espionage to American industry between 1993-5 alone was c. \$63 billion.

The average net loss per incident reported was \$19 million in high technology, \$29 million in services, and \$36 million in manufacturing. ASIC than upped its estimate to \$300 billion in 1997 alone - compared to \$100 billion assessed by the 1995 report of the White House Office of Science and Technology.

This figures are mere extrapolations based on anecdotal tales of failed espionage. Many incidents go unreported. In his address to the 1998 World Economic Forum, Frank Ciluffo, Deputy Director of the CSIS Global Organized Crime Project, made clear why:

"The perpetrators keep quiet for obvious reasons. The victims do so out of fear. It may jeopardize shareholder and consumer confidence. Employees may lose their jobs. It may invite copycats by inadvertently revealing vulnerabilities. And competitors may take advantage of the negative publicity. In fact, they keep quiet for all the same reasons corporations do not report computer intrusions."

Interactive Television Technologies complained - in a press release dated August 16, 1996 - that someone broke into its Amherst, NY, offices and stole "three computers containing the plans, schematics, diagrams and specifications for the BUTLER, plus a number of computer disks with access codes." BUTLER is a proprietary technology which helps connect television to computer networks, such as the Internet. It took four years to develop.

In a single case, described in the Jan/Feb 1996 issue of "Foreign Affairs", Ronald Hoffman, a software scientist, sold secret applications developed for the Strategic Defense Initiative to Japanese corporations, such as Nissan Motor Company, Mitsubishi Electric, Mitsubishi Heavy Industries, and Ishikawajima-Harima Heavy Industries. He was caught in 1992, having received \$750,000 from his "clients", who used the software in their civilian aerospace projects.

Canal Plus Technologies, a subsidiary of French media giant Vivendi, filed a lawsuit last March against NDS, a division of News Corp. Canal accused NDS of hacking into its pay TV smart cards and distributing the cracked codes freely on a piracy Web site. It sued NDS for \$1.1 billion in lost revenues. This provided a rare glimpse into information age, hacker-based, corporate espionage tactics.

Executives of publicly traded design software developer Avant! went to jail for purchasing batches of computer code from former employees of Cadence in 1997.

Reuters Analytics, an American subsidiary of Reuters Holdings, was accused in 1998 of theft of proprietary information from Bloomberg by stealing source codes from its computers.

In December 2001, Say Lye Ow, a Malaysian subject and a former employee of Intel, was sentenced to 24 months in prison for illicitly copying computer files containing advanced designs of Intel's Merced (Itanium) microprocessor. It was the crowning achievement of a collaboration between the FBI's High-Tech squad and the US Attorney's Office CHIP - Computer Hacking and Intellectual Property - unit.

U.S. Attorney David W. Shapiro said: "People and companies who steal intellectual property are thieves just as bank robbers are thieves. In this case, the Itanium microprocessor is an extremely valuable product that took Intel and HP years to develop. These cases should send the message throughout Silicon Valley and the Northern District that the U.S. Attorney's Office takes seriously the theft of intellectual property and will prosecute these cases to the full extent of the law."

Yet, such cases are vastly more common than publicly acknowledged.

"People have struck up online friendships with employers and then lured them into conspiracy to commit espionage. People have put bounties on laptops of executives. People have disguised themselves as janitors to gain physical access," Richard Power, editorial director of the Computer Security Institute told MSNBC.

Marshall Phelps, IBM Vice President for Commercial and Industry Relations admitted to the Senate Judiciary Committee as early as April 1992:

"Among the most blatant actions are outright theft of corporate proprietary assets. Such theft has occurred from many quarters: competitors, governments seeking to bolster national industrial champions, even employees. Unfortunately, IBM has been the victim of such acts."

Raytheon, a once thriving defense contractor, released "SilentRunner", a \$25,000-65,000 software package designed to counter the "insider threat". Its brochure, quoted by "Wired", says:

"We know that 84 percent of your network threats can be expected to come from inside your organization.... This least intrusive of all detection systems will guard the integrity of your network against abuses from unauthorized employees, former employees, hackers or terrorists and competitors."

This reminds many of the FBI's Carnivore massive network sniffer software. It also revives the old dilemma between privacy and security. An Omni Consulting survey of 3200 companies worldwide pegged damage caused by insecure networks at \$12 billion.

There is no end to the twists and turns of espionage cases and to the creativity shown by the perpetrators.

On June 2001 an indictment was handed down against Nicholas Daddona. He stands accused of a unique variation on the old theme of industrial espionage: he was employed by two firms - transferring trade secrets from one (Fabricated Metal Products) to the other (Eyelet).

Jungsheng Wang was indicted last year for copying the architecture of the Sequoia ultrasound machine developed by Acuson Corporation. He sold it to Bell Imaging, a Californian company which, together with a Chinese firm, owns a mainland China corporation, also charged in the case. The web of collaboration between foreign - or foreign born - scientists with access to trade and technology secrets, domestic corporations and foreign firms, often a cover for government interests - is clearly exposed here.

Kenneth Cullen and Bruce Zak were indicted on April 2001 for trying to purchase a printed or text version of the source code of a computer application for the processing of health care benefit claim forms developed by ZirMed. The legal status of printed source code is unclear. It is undoubtedly intellectual property - but of which kind? Is it software or printed matter?

Peter Morch, a senior R&D team leader for CISCO was accused on March 2001 for simply burning onto compact discs all the intellectual property he could lay his hands on with the intent of using it in his new workplace, Calix Networks, a competitor of CISCO.

Perhaps the most bizarre case involves Fausto Estrada. He was employed by a catering company that served the private lunches to Mastercard's board of directors. He offered to sell Visa proprietary information that he claimed to have stolen from Mastercard. In a letter signed "Cagliostro", Fausto demanded \$1 million. He was caught red-handed in an FBI sting operation on February 2001.

Multinationals are rarely persecuted even when known to have colluded with offenders. Steven Louis Davis pleaded guilty on January 1998 to stealing trade secrets and designs from Gillette and selling them to its competitors, such as Bic Corporation, American Safety Razor, and Warner Lambert. Yet, it seems that only he paid the price for his misdeeds - 27 months in prison. Bic claims to have immediately informed Gillette of the theft and to have collaborated with Gillette's Legal Department and the FBI.

Nor are industrial espionage or the theft of intellectual property limited to industry. Mayra Justine Trujillo-Cohen was sentenced on October 1998 to 48 months in prison for stealing proprietary software from Deloitte-Touche, where she worked as a consultant, and passing it for its own. Caroll Lee Campbell, the circulation manager of Gwinette Daily Post (GDP), offered to sell proprietary business and financial information of his employer to lawyers representing a rival paper locked in bitter dispute with GDP.

Nor does industrial espionage necessarily involve clandestine, cloak and dagger, operations. The Internet and information technology are playing an increasing role.

In a bizarre case, Caryn Camp developed in 1999 an Internet-relationship with a self-proclaimed entrepreneur, Stephen Martin. She stole the employer's trade secrets for Martin in the hope of attaining a senior position in Martin's outfit - or, at least, of being richly rewarded. Camp was exposed when she mis-addressed an e-mail expressing her fears - to a co-worker.

Steven Hallstead and Brian Pringle simply advertised their wares - designs of five advanced Intel chips - on the Web. They were, of course, caught and sentenced to more than 5 years in prison. David Kern copied the contents of a laptop inadvertently left behind by a serviceman of a competing firm. Kern trapped himself. He was forced to plead the Fifth Amendment during his deposition in a civil lawsuit he filed against his former employer. This, of course, provoked the curiosity of the FBI.

Stolen trade secrets can spell the difference between extinction and profitability. Jack Shearer admitted to building an \$8 million business on trade secrets pilfered from Caterpillar and Solar Turbines.

United States Attorney Paul E. Coggins stated: "This is the first EEA case in which the defendants pled guilty to taking trade secret information and actually converting the stolen information into manufactured products that were placed in the stream of commerce. The sentences handed down today (June 15, 2000) are among the longest sentences ever imposed in an Economic Espionage case."

Economic intelligence gathering - usually based on open sources - is both legitimate and indispensable. Even reverse engineering - disassembling a competitor's products to learn its secrets - is a grey legal area. Spying is different. It involves the purchase or theft of proprietary information illicitly. It is mostly committed by firms. But governments also share with domestic corporations and multinationals the fruits of their intelligence networks.

Former - and current - intelligence operators (i.e., spooks), political and military information brokers, and assorted shady intermediaries - all switched from dwindling Cold War business to the lucrative market of "competitive intelligence".

US News and World Report described on May 6, 1996, how a certain Mr. Kota - an alleged purveyor of secret military technology to the KGB in the 1980's - conspired with a scientist, a decade later, to smuggle biotechnologically modified hamster ovaries to India.

This transition fosters international tensions even among allies. "Countries don't have friends - they have interests!" - screamed a DOE poster in the mid-nineties. France has vigorously protested US spying on French economic and technological developments - until it was revealed to be doing the same. French relentless and unscrupulous pursuit of purloined intellectual property in the USA is described in Peter Schweizer's "Friendly Spies: How America's Allies Are Using Economic Espionage to Steal Our Secrets."

"Le Monde" reported back in 1996 about intensified American efforts to purchase from French bureaucrats and legislators information regarding France's WTO, telecommunications, and audio-visual policies. Several CIA operators were expelled.

Similarly, according to Robert Dreyfuss in the January 1995 issue of "Mother Jones", Non Official Cover (NOC) CIA operators - usually posing as businessmen - are stationed in Japan.

These agents conduct economic and technological espionage throughout Asia, including in South Korea and China.

Even the New York Times chimed in, accusing American intelligence agents of assisting US trade negotiators by eavesdropping on Japanese officials during the car imports row in 1995. And President Clinton admitted openly that intelligence gathered by the CIA regarding the illegal practices of French competitors allowed American aerospace firms to win multi-billion dollar contracts in Brazil and Saudi Arabia.

The respected German weekly, Der Spiegel, castigated the USA, in 1990, for arm-twisting the Indonesian government into splitting a \$200 million satellite contract between the Japanese NEC and US manufacturers. The American, alleged the magazines, intercepted messages pertaining to the deal, using the infrastructure of the National Security Agency (NSA). Brian Gladwell, a former NATO computer expert, calls it "state-sponsored information piracy".

Robert Dreyfuss, writing in "Mother Jones", accused the CIA of actively gathering industrial intelligence (i.e., stealing trade secrets) and passing them on to America's Big Three carmakers. He quoted Clinton administration officials as saying: "(the CIA) is a good source of information about the current state of technology in a foreign country ... We've always managed to get intelligence to the business community. There is contact between business people and the intelligence community, and information flows both ways, informally."

A February 1995 National Security Strategy statement cited by MSNBC declared:

"Collection and analysis can help level the economic playing field by identifying threats to U.S. companies from foreign intelligence services and unfair trading practices."

The Commerce Department's Advocacy Center solicits commercial information thus:

"Contracts pursued by foreign firms that receive assistance from their home governments to pressure a customer into a buying decision; unfair treatment by government decision-makers, preventing you from a chance to compete; tenders tied up in bureaucratic red tape, resulting in lost opportunities and unfair advantage to a competitor. If these or any similar export issues are affecting your company, it's time to call the Advocacy Center."

And then, of course, there is Echelon.

Exposed two years ago by the European Parliament in great fanfare, this telecommunications interception network, run by the US, UK, New Zealand, Australia, and Canada has become the focus of bitter mutual recriminations and far flung conspiracy theories.

These have abated following the brutal terrorist attacks of September 11 when the need for Echelon-like system with even laxer legal control was made abundantly clear. France, Russia, and 28 other nations operate indigenous mini-Echelons, their hypocritical protestations to the contrary notwithstanding.

But, with well over \$600 billion a year invested in easily pilfered R&D, the US is by far the prime target and main victim of such activities rather than their chief perpetrator. The harsh -

and much industry lobbied - "Economic Espionage (and Protection of Proprietary Economic Information) Act of 1996" defines the criminal offender thus:

"Whoever, intending or knowing that the offense will benefit any foreign government, foreign instrumentality, or foreign agent, knowingly" and "whoever, with intent to convert a trade secret, that is related to or included in a product that is produced for or placed in interstate or foreign commerce, to the economic benefit of anyone other than the owner thereof, and intending or knowing that the offense will , injure any owner of that trade secret":

"(1) steals, or without authorization appropriates, takes, carries away, or conceals, or by fraud, artifice, or deception obtains a trade secret (2) without authorization copies, duplicates, sketches, draws, photographs, downloads, uploads, alters, destroys, photocopies, replicates, transmits, delivers, sends, mails, communicates, or conveys a trade secret (3) receives, buys, or possesses a trade secret, knowing the same to have been stolen or appropriated, obtained, or converted without authorization (4) attempts to commit any offense described in any of paragraphs (1) through (3); or (5) conspires with one or more other persons to commit any offense described in any of paragraphs (1) through (4), and one or more of such persons do any act to effect the object of conspiracy."

Other countries either have similar statutes (e.g., France) - or are considering to introduce them. Taiwan's National Security Council has been debating a local version of an economic espionage law lat month. There have been dozens of prosecutions under the law hitherto. Companies - such as "Four Pillars" which stole trade secrets from Avery Dennison - paid fines of millions of US dollars. Employees - such as PPG's Patrick Worthing - and their accomplices were jailed.

Foreign citizens - like the Taiwanese Kai-Lo Hsu and Prof. Charles Ho from National Chiao Tung university - were detained. Mark Halligan of Welsh and Katz in Chicago lists on his Web site more than 30 important economic espionage cases tried under the law by July last year.

The Economic Espionage law authorizes the FBI to act against foreign intelligence gathering agencies toiling on US soil with the aim of garnering proprietary economic information. During the Congressional hearings that preceded the law, the FBI estimated that no less that 23 governments, including the Israeli, French, Japanese, German, British, Swiss, Swedish, and Russian, were busy doing exactly that. Louis Freeh, the former director of the FBI, put it succinctly: "Economic Espionage is the greatest threat to our national security since the Cold War."

The French Ministry of Foreign Affairs runs a program which commutes military service to work at high tech US firms. Program-enrolled French computer engineers were arrested attempting to steal proprietary source codes from their American employers.

In an interview he granted to the German ZDF Television quoted by "Daily Yomiuri" and Netsafe, the former Director of the French foreign counterintelligence service, the DGSE, freely confessed:

"....All secret services of the big democracies undertake economic espionage ... Their role is to peer into hidden corners and in that context business plays an important part ... In France

the state is not just responsible for the laws, it is also an entrepreneur. There are state-owned and semi-public companies. And that is why it is correct that for decades the French state regulated the market with its right hand in some ways and used its intelligence service with its left hand to furnish its commercial companies ... It is among the tasks of the secret services to shed light on and analyze the white, grey and black aspects of the granting of such major contracts, particularly in far-off countries."

The FBI investigated 400 economic espionage cases in 1995 - and 800 in 1996. It interfaces with American corporations and obtains investigative leads from them through its 26 years old Development of Espionage, Counterintelligence, and Counter terrorism Awareness (DECA) Program renamed ANSIR (Awareness of National Security Issues and Response). Every local FBI office has a White Collar Crime squad in charge of thwarting industrial espionage. The State Department runs a similar outfit called the Overseas Security Advisory Council (OSAC).

These are massive operations. In 1993-4 alone, the FBI briefed well over a quarter of a million corporate officers in more than 20,000 firms. By 1995, OSAC collaborated on overseas security problems with over 1400 private enterprises. "Country Councils", comprised of embassy official and private American business, operate in dozens of foreign cities. They facilitate the exchange of timely "unclassified" and threat-related security information.

More than 1600 US companies and organization are currently permanently affiliated with OSAC. Its Advisory Council is made up of twenty-one private sector and four public sector member organizations that, according to OSAC, "represent specific industries or agencies that operate abroad. Private sector members serve for two to three years. More than fifty U.S. companies and organizations have already served on the Council. Member organizations designate representatives to work on the Council.

These representatives provide the direction and guidance to develop programs that most benefit the U.S. private sector overseas. Representatives meet quarterly and staff committees tasked with specific projects. Current committees include Transnational Crime, Country Council Support, Protection of Information and Technology, and Security Awareness and Education."

But the FBI is only one of many agencies that deal with the problem in the USA. The President's Annual Report to Congress on "Foreign Economic Collection and Industrial Espionage" dated July 1995, describes the multiple competitive intelligence (CI) roles of the Customs Service, the Department of Defense, the Department of Energy, and the CIA.

The federal government alerts its contractors to CI threats and subjects them to "awareness programs" under the DOD's Defense Information Counter Espionage (DICE) program. The Defense Investigative Service (DIS) maintains a host of useful databases such as the Foreign Ownership, Control, or Influence (FOCI) register. It is active otherwise as well, conducting personal security interviews by industrial security representatives and keeping tabs on the foreign contacts of security cleared facilities. And the list goes on.

According to the aforementioned report to Congress:

"The industries that have been the targets in most cases of economic espionage and other collection activities include biotechnology; aerospace; telecommunications, including the technology to build the 'information superhighway'; computer software/ hardware; advanced transportation and engine technology; advanced materials and coatings, including 'stealth' technologies; energy research; defense and armaments technology; manufacturing processes; and semiconductors. Proprietary business information-that is, bid, contract, customer, and strategy in these sectors is aggressively targeted. Foreign collectors have also shown great interest in government and corporate financial and trade data."

The collection methods range from the traditional - agent recruitment and break ins - to the technologically fantastic. Mergers, acquisitions, joint ventures, research and development partnerships, licensing and franchise agreements, friendship societies, international exchange programs, import-export companies - often cover up for old fashioned reconnaissance. Foreign governments disseminate disinformation to scare off competitors - or lure them into well-set traps.

Foreign students, foreign employees, foreign tourist guides, tourists, immigrants, translators, affable employees of NGO's, eager consultants, lobbyists, spin doctors, and mock journalists are all part of national concerted efforts to prevail in the global commercial jungle. Recruitment of traitors and patriots is at its peak in international trade fairs, air shows, sabbaticals, scientific congresses, and conferences.

On May 2001, Takashi Okamoto and Hiroaki Serizwa were indicted of stealing DNA and cell line reagents from Lerner Research Institute and the Cleveland Clinic Foundation. This was done on behalf of the Institute of Physical and Chemical Research (RIKEN) in Japan - an outfit 94 funded by the Japanese government. The indictment called RIKEN "an instrumentality of the government of Japan".

The Chinese Ministry of Posts and Telecommunications was involved on May 2001 in an egregious case of theft of intellectual property. Two development scientists of Chinese origin transferred the PathStar Access Server technology to a Chinese corporation owned by the ministry. The joint venture it formed with the thieves promptly came out with its own product probably based on the stolen secrets.

The following ad appeared in the Asian Wall Street Journal in 1991 - followed by a contact phone number in western Europe:

"Do you have advanced/privileged information of any type of project/contract that is going to be carried out in your country? We hold commission/agency agreements with many large European companies and could introduce them to your project/contract. Any commission received would be shared with yourselves."

Ben Venzke, publisher of Intelligence Watch Report, describes how Mitsubishi filed c. 1500 FOIA (Freedom of Information Act) requests in 1987 alone, in an effort to enter the space industry. The US Patent office is another great source of freely available proprietary information.

Industrial espionage is not new. In his book, "War by Other Means: Economic Espionage in America", The Wall Street Journal's John Fialka, vividly describes how Frances Cabot Lowell absconded from Britain with the plans for the cutting edge Cartwright loom in 1813.

Still, the phenomenon has lately become more egregious and more controversial. As Cold War structures - from NATO to the KGB and the CIA - seek to redefine themselves and to assume new roles and new functions, economic espionage offers a tempting solution.

Moreover, decades of increasing state involvement in modern economies have blurred the traditional demarcation between the private and the public sectors. Many firms are either state-owned (in Europe) or state-financed (in Asia) or sustained by state largesse and patronage (the USA). Many businessmen double as politicians and numerous politicians serve on corporate boards.

Eisenhower's "military-industrial complex" though not as sinister as once imagined is, all the same, a reality. The deployment of state intelligence assets and resources to help the private sector gain a competitive edge is merely its manifestation.

As foreign corporate ownership becomes widespread, as multinationals expand, as nation-states dissolve into regions and coalesce into supranational states - the classic, exclusionary, and dichotomous view of the world ("we" versus "they") will fade. But the notion of "proprietary information" is here to stay. And theft will never cease as long as there is profit to be had.

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Leapfrogging to Cellular Telephony

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The government of Yugoslavia, usually strapped for cash, has agreed to purchase 29 percent of Telekom Srbija, of which it already owns 51 percent. It will pay the seller, Italia International, close to \$200 million. The Greek telecom, OTE, owns the rest.

On Friday, the Serb privatization minister, Aleksandar Vlahovic, continued to spar in public with a Milosevic-era oligarch, Blagoljub Karic, over his share of Mobtel, Serbia's largest cellular phone operator. The company, announced the minister, will be privatized by tender and Karic's share will be diluted to 30 percent.

Such clashes signal rich pickings.

The mobile phone market is booming throughout central and eastern Europe. According to Baskerville's Global Mobile industry newsletter, annual subscriber growth in countries as rich as Russia and as impoverished as Albania exceeds 100 percent. Belarus is off the charts with 232 percent. Macedonia (82 percent), Ukraine (79 percent), Moldova (86 percent), Lithuania (84 percent) and Bulgaria (79 percent) are not far behind.

Growth rates are positively correlated with the level of penetration. More than four fifths of Slovenes and Czechs have access to a cellphone. Hence the lackadaisical annual increases of 14 and 37 percent respectively. But even these are impressive numbers by west European standards. Annual subscriber growth there is a meager 7 percent.

Penetration, in turn, is a function of the population's purchasing power and the state of the - often decrepit - fixed phone network. Thus, in Serbia, smarting from a decade of war and destitution, both the penetration and the growth rates are dismal, at c. 20 percent.

Russia alone accounts for one of every five subscribers in the region and one third of the overall market growth. According to the Jason & Partners consultancy, the number of mobile phone subscribers in Russia has more than doubled in 2002 to 17.8 million users. AC&M, another telecommunications consulting outfit, pegs the growth at 117-124 percent.

Mobile TeleSystems (MTS) services one third of all users, Vimpelcom more than one quarter and MegaFon about one sixth. But there is a host of much smaller companies nibbling at their heels. Advanced cellular networks - such as under the 2.5G protocol - are expected to take off.

Usage in Russia is still largely confined to metropolitan areas. While the country-wide penetration is c. 12 percent (more than double the 2001 figure) - Moscow's is an impressive 48 percent. St. Petersburg, Russia's second most important metropolis, is not far behind with 33 percent.

Still, as urban markets mature, the regions and provinces represent untapped opportunities. Vimpelcom, backed by Norway's Telenor, paid last month \$26.5 million for Vostok-Zapad Telecom, a company whose sole assets are licenses covering the Urals. This was the operator's third such purchase this year. Earlier, it purchased Extel which covers the Baltic exclave of Kaliningrad and Orensot, another Urals licensee.

Vimpelcom is up against Uralsvyazinform, a Perm-based fixed-line and mobile-phone telecommunications operator in the Urals Federal District. According to Radio Free Europe/Radio Liberty and Prime-TASS, the former has increased its capacity last year by some 265,000 cellular-phone numbers.

But Vimpelcom is undeterred. According to Gazeta.ru, it has announced its expansion to Siberia (Karsnoyarski Krai) to compete head on with two indigenous incumbents, EniseiTelecom and SibChallenge. Vimpelcom's competitors are pursuing a similar strategy: MTS has recently purchased Kuban GSM, the country's fourth largest operator, mainly in its south.

Local initiatives have emerged where cellular phone services failed to transpire. RIA-Novosti recounted how 11 pensioners, the residents of a village in Novgorod Oblast have teamed up to invest in a community mobile phone to be kept by the medic. The fixed line network extended only to the nearest village.

The industry is bound to consolidate as new technologies, developing user expectations and exiting foreign investors - mainly Scandinavian, American and German telecoms - increase the pressure on profit margins. One of the major problems is collecting on consumer credit.

Vedomosti, the Russian business weekly, reported that Vimpelcom was forced to write off \$16 million in non-performing credit last year. Close to 2 percent of its clients are more than 60 days in arrears. Vremya Novosti, another Russian paper, puts the accounts receivable at 15 percent of revenues in Vimpelcom, though only 5 percent at MTS.

The cellular phone market throughout central and eastern Europe is at least as exciting as it is in Russia.

As of Jan 1, Romania's fixed line telecommunications system, Romtelecom, majority owned by the Greek OTE, has lost its monopoly status. In the wake of this long awaited liberalization, more than 700 applications for operating licences have been filed with the Romanian authorities, many of them for both fixed and mobile numbers. Fixed line density is so low, mobile penetration, at 20 percent, so dismal, prices so inflated and service so inefficient - that new operators are bound to make a killing on their investment.

Past liberalizations in central European markets - Poland, the Czech Republic and Hungary - have not been auspicious. Prices rose, the erstwhile monopoly largely retained its position and competition remained muted. But Romania is different. Its liberalization is neither partial, nor hesitant. The process is not encumbered by red tape and political obstruction. Even so, mobile phones are likely to be the big winners as the fixed line infrastructure recovers glacially from decades of neglect.

Bulgaria's GSM operator, MobiTel is on the block, though a deal concluded with an Austrian consortium last year fell through. It is considering an initial public offering next year. Another GSM licensee, GloBul, attracted 330,000 subscribers in its first year of operation and covers 65 percent of the population. The country's first cellphone company, Mobikom, intends to branch into GSM and CDMA, following a recent reallocation of national radio frequencies.

Macedonia's second mobile operator, MTS, owned by the Greek OTE, was involved last year in bitter haggling with Mobimak (owned by Makedonski Telekom), the only incumbent, over its inter-connection price. The telecommunications administration threatened to cut off Mobimak but, finding itself on murky legal ground, refrained from doing so.

The British cellular phone company, Vodafone, has expressed interest in the past in Promonte, Montenegro's mobile outfit.

Mobile phone companies are going multinational. Russia's MTS owns a - much disputed - second license in Belarus. It has pledged, last November, to plough \$60 million into a brand new network. MTS also acquired a majority stake in Ukrainian Mobile Communications (UMC), the country's second largest operator. The Russian behemoth is eyeing Bulgaria and Moldova as well.

Wireless telephony is a prime example of technological leapfrogging. Faced with crumbling fixed line networks, years on waiting lists, frequent interruptions of service and a venal bureaucracy, subscribers opt to go cellular. Last year, the aggregate duration of mobile phone calls in Croatia leapt by 50 percent. It nudged up by a mere 0.5 percent on wired lines.

New services, such as short messages (SMS) and textual information pages are booming. Romania's operator, Orange, has launched multimedia messaging. Macedonia introduced WAP, a protocol allowing cellphones to receive electronic data including e-mail messages and Web pages. The revenues from such value added offerings will shortly outweigh voice communications in the west. The east is attentive to such lessons.

Note on the iPhone - Interview granted to san Jose Mercury Sun, June 2007

The iPhone is the culmination and reification of a few such trends and, to hazard a guess, will, indeed, be proven in hindsight to have been even more important than the iPod or even the Blackberry. But importance does not always translate to sales. In commercial terms, the iPhone is comparable to the Mac, not to the iPod. It is too geeky and nerdy to become a household staple. It will be supplanted by something simpler to operate, accessible, and less intimidating, not to mention less expensive and more universal (e.g., not pledged to one phone service provider, like AT&T).

So, why is it important?

Because, though severely limited by way of options and features, the iPhone embodies the seamless convergence of erstwhile separate appliances such as the digital camera, the MP player, the mobile phone, voicemail, and the PC. It is, therefore, the first true proponent of ubiquitous (anywhere) computing. Its connection to iTunes also makes it the first representative of a workable on-the-go infotainment center (though mobile phone are far from ideal venues as far as video goes).

Doubtlessly, it will be succeeded by far more versatile and feature-rich versions. Undoubtedly, it will face stiff competition. But, whether like iPod, it will maintain a first mover advantage remain to be seen. I doubt it.

Leapfrogging Transition
Technology and Development in Post-Communist Europe

Also published by United Press International (UPI)

In many countries in transition cellular phones are more ubiquitous than the fixed-line kind. Teledensity is vanishingly low throughout swathes of Central and Eastern Europe (CEE). Broadband and e-commerce are distant rumors (ISDN is available in theory but not so in practice - DSL and ADSL are not available at all). Rare phone lines - especially in urban centers - are still being multiplexed and shared by 4-8 subscribers, greatly reducing both quality and usability. Terrestrial television competes ferociously with satellite TV, though cable penetration is low. Internet access is prohibitively expensive and intermittent. Many technologies rely on network effects (i.e., a critical mass of users). CEE is far from reaching this elusive point.

When communism imploded in 1989, pundits were quick to spot the silver lining. The countries in transition, they said, could now leapfrog whole stages of development by adopting novel technologies and through them the expensive Western research they embody. The East can learn from the West's mistakes and, by avoiding them, achieve a competitive edge.

In his seminal book, "Leapfrogging Development - The Political Economy of Telecommunications Restructuring", J.P. Singh, examined the acceleration of development through the adoption of ready-made, off the shelf, technologies. His melancholy conclusion was that development preferences are the outcomes of an intricate inter-play between sectoral pressure groups and coalitions of interest groups - and not the result of progress ex machina. He distinguished three types of states - catalytic, near-catalytic, and dysfunctional. Though he deals exclusively with Asia and Latin America, his typology is applicable to post-Communist Europe.

I. An Overview

The Central and East European market will double itself (to \$17 billion) by 2003, says IDC. Pyramid Research predicts a \$60 billion communications market by 2005. "Information Society", ICT (Information and Communication Technologies), "leapfrogging", and "better online than in line" are buzzwords and slogans oft-used throughout the region. A horde of NGO's - local and international - collaborate with domestic government and local authorities, with foreign governments, multinationals, and international organizations to make the dream of a digital Europe come true.

Russia pledged to attract \$33 billion in investments in its telecommunications infrastructure and services by the year 2010 (the "Electronic Russia" initiative). The US Commercial Service, in the American Embassy in Moscow, predicts an annual growth rate of the Russian ICT sector of 15-20 percent through 2003. Conferences abound (an important one regarding

municipal collaboration in constructing an information highway is to be held in the Czech Republic on March 26-27).

Even devastated Armenia succeeded to export \$20 million worth of IT goods in 2001 (its IT sector has grown by 30% last year). It hosts branches of Silicon Valley household names such as Credence, HPL, and Virage Logic. More than 4000 professionals are employed in 200 companies. Of 60 software development outfits - 26 were founded with American capital. LEDA, a prominent local IT firm, finances IT programs at the Armenian State Engineering University.

All EU candidates strive to get incorporated in existing European networks (such as ELANET, Telecities, IDA, and ERISA) and new, candidate-only, initiatives (such as eEurope+). The EU has applied its "universal (i.e., also affordable) service" rule to Internet access. EU members adopted a variety of measures to increase Internet awareness and usage. Portugal, for instance, granted individuals with tax incentives coupled with free e-mail accounts and Web hosting services to encourage them to purchase PC's. The Dutch established public computer literacy centers for the disenfranchised (e.g., the unemployed) and provided them with discounted and subsidized hardware and connection time.

In one of its more grandiose moments, the heads of governments of the EU countries have decided in Lisbon (2000) that "each citizen should have access to the Internet and the whole European Union should become computer-literate", in the words of the Czech conference organizers.

This is an ambitious undertaking not only because Europe in general is behind the USA where Internet matters (with the exception of wireless Internet) are concerned - but because the countries which used to be behind the Iron Curtain, now lurch in the Digital Divide.

According to Vasile Baltac from the Information Technology and Communications Association of Romania ("The Balkan and Eastern Europe - Digital Divide or Digital Opportunity"), Romania has invested \$25 per capita in ICT in 1999 (compared to Greece's \$567 and the EU's average of \$1215). There were only 2.5 Internet users per 1000 inhabitants in Romania and Bulgaria - compared to 56.4 in Westward-looking Slovenia.

New technologies are used mostly by the elites in CEE (as pointed out by Zassourski and Vartanova in "Transformation in the Context of Transition") - and perhaps advertently so. Still, Baltac fingers the managerial class as the main obstacle to leapfrogging (i.e., the rapid dissemination and assimilation of advanced technologies). They pay lip service to modernization but feel threatened and repelled by it. On the positive side, Baltac notes the annual yield of qualified professionals (who mostly find work in the West) and the emergence of telework and e-commerce. The technological vacuum makes the CEE countries receptive to state of the art technologies. GSM penetration in Romania surpassed the level of fixed line coverage in 1989. The number of cable TV subscribers in the region is projected to double (to 20 million) by 2005.

But the true picture is often obscured by anecdotal evidence, wishful thinking, phobias (e.g., the West European fear of mass migration from East Europe), lack of reliable statistics, and absence of qualified analysts and investment bankers. Factors like hostile terrain and climate, cross-subsidies, lack of real competition, corruption, red tape, moribund financial systems,

archaic legal ones, dearth of credit card holders, urban-rural gaps, and English language illiteracy - rarely appear in neat, colorful, presentations.

Pyramid Research is bearish on broadband. "Internet access is and will remain for the foreseeable future a predominantly narrowband, dial-up affair, even in the most advanced countries (in Central Europe)". This despite plans by regional operators to offer DSL, FWA (Fixed Wireless Access), cable TV and leased-line broadband access (already offered in the Czech Republic by cable networks) and despite a regulatory welcome in all three CE candidates (Hungary, Poland, and the Czech Republic).

Luckily, mobile telephony - the other pillar of the leapfrogging theory - is getting increasingly concentrated in the hands of fewer operators (though at least 3 per every major market). Pyramid projects that by 2006, 94 percent of Russia's cellular phone market will be in the hands of the five leading providers (compared to 85 percent at the end of 2001). Mobile penetration will increase (to c. 10 percent) and prepaid customers will account for the vast majority of users.

Revenues from cellular networks exceed revenues from fixed line networks in certain markets. SMS is booming. Second and third mobile operator licenses are tendered by all cash strapped governments in the region (though a Polish attempt to sell an UMTS license ended in a fiasco). Poland introduced a wireless local loop service. Macedonia just handed a second mobile operator license to the Greek OTE.

"By the end of 2005, the total number of mobile subscribers in CEE will exceed 50 million (compared to 30 million by end-2001) and mobile Internet accounts will constitute approximately 21 percent of total mobile accounts", projects Pyramid. The Czech Republic will have 78 mobile users per 100 population - and Hungary 66. In a second tier of countries - the likes of Bulgaria, Romania, Ukraine, and Russia - a mobile phone will remain a luxury and a status symbol.

Hitherto domestic operators - from the Greek OTE to the Russian MTS - are becoming regional. Multinationals, such as the British Vodafone and the French Orange - have entered the regional fray. Some CEE markets are as saturated (and customers as savvy and demanding) as many advanced Western European ones. A host of value added services (VAS) is thrust upon the - sometimes reluctant - users, leading naturally to WAP (recently introduced throughout much of CEE), 2.5G, and 3G (wi-fi or wireless Internet) services.

Moreover, Pyramid sees an intriguing opportunity in VoIP (Voice over IP) telephony. It says:

"As the incumbents in the CEE markets continue to dominate long-distance circuit-switched telephony, VoIP offers a unique opportunity for new operators to gain a foothold in this traditional monopolistic stronghold."

Internet Telephony Service Providers (ITSP's) have sprung up all over the region (an Israeli firm is now planning to offer VoIP services in Macedonia, Kosovo, and Albania). Even incumbents have been offering VoIP - as early as 1998 in the Czech Republic. In his keynote address to The Economist CEE Telecommunications Conference, in December 2001, Ofer Gneezy, President and CEO of iBasis (a global ITSP), cited industry analysts projecting VoIP average annual growth rates in CEE of 80 percent through 2006.

This, coupled with a growing number of Internet users and access providers (spurred on by telecoms liberalization and growing incomes), may revolutionize the landscape in the next 5-10 years. Pyramid expects annual Internet adoption growth rates of 40 percent through 2005 (that's 30,000 new users a day!). Internet related revenues will reach \$10 billion by 2005 (five times today's \$1.8 billion - but only one seventh the Internet market in Western Europe).

Internet penetration in Central Europe will reach 15 percent in 2005 (from 4 percent today and 3 percent in Russia) - and 40 percent in Western Europe (compared to 18 percent today). Mobile Internet accounts will constitute one third of the total in CEE - c. 20 million users. Harald Gruber of the European Investment Bank is even more optimistic, saying ("Competition and Innovation: The Diffusion of Telecommunications in CEE", March 2000): "About 20 percent of the population will adopt mobile telecommunications".

II. The Future

Leapfrogging is not a linear function of the ubiquity of hardware and software. Though not a homogeneous lot, some lessons common to all countries in transition are already evident.

Technology is a social phenomenon with social implications. It fosters entrepreneurship and social mobility. By allowing the countries in transition to skip massive investments in outdated technologies - the cellular phone, the Internet, cable TV, and the satellite came to be perceived as shortcuts to prosperity, the generators of the dual ethoses of "rags to riches", and "creative destruction" (dizzying, constant, and disruptive innovation). They are the future, a youthful promise, and a landscape of opportunities.

Software developers in CEE countries tried to establish local versions of "Silicon Valley", or the flourishing software industry in India. Russian entrepreneurs developed anti virus software, Yugoslavs offered web design services, electronic media flourished in the Czech Republic and so on. But, as hard reality set in, most of these talents left for Western Europe, the USA, Canada, and Australia - where technology firms snatched them eagerly. Central and Eastern Europe is a major net exporter of engineers, programmers, systems analysts, Web designers, and concepts analysts.

Internet penetration in these countries - even in the most wired - is still very low by European standards, let alone American ones. The trauma of communism left them with decrepit and rarefied infrastructure, a prohibitive, extortionist, and skewed cost structure, computer illiteracy, inefficient competition, insufficient investment capital, and entrenched luddism (e.g., computer phobia). Foreign operators often exacerbate the situation. ArmenTel, the Greek owned monopoly in Armenia, keeps Internet access costs prohibitively high, ignoring court actions by the government and loud complaints by disgruntled customers.

The Center for Democracy and Technology (in its report "Bridging the Digital Divide: Internet Access in Central and Eastern Europe") says that, as contrasted with India (or Malaysia), the countries of the CEE did not invest in computerizing their schools, public libraries, and higher education institutions, or in subsidizing private computer-training colleges.

More crucially and less reversibly, decades of central (mis-)planning rendered the societies of Central and Eastern Europe inert and dependent, apart from their traditional conservatism.

Many - especially older mid- and high-level managers and engineers - feel threatened by technology. Technology makes people redundant.

To a few open minded (i.e., foreign owned) firms, computer networking stands for decentralized channels of distribution and marketing as well as potential global penetration. But even there, only a minuscule number of businesses took advantage of e-commerce (though the countries of Central Europe and the Baltic may be the global pioneers of m-commerce due to their wireless networks).

E-commerce is leapfrogging's litmus test because it represents the culmination and confluence of hardware, software, and process engineering. To have e-commerce, a country needs rich computer infrastructure, a functioning telecommunications network, and cheap access to the Internet. Its citizens need to be reasonably computer literate, possess both a consumerist mentality (e.g., inability to postpone gratification), and a modicum of trust between the players in the economy - and hold credit cards.

Alas, the countries in transition lack all of the above to varying degrees. The Economist Intelligence Unit ranked Russia 42nd (out of 60 countries) in its year 2000 "e-readiness survey". Other CEE countries fared little better.

Penetration and coverage rates (the number of computers and phone lines per household), network reliability, and the absolute number of Internet users - are all dismally low. Access fees are prohibitively high. Budding Internet enterprises in the countries in transition are happy exceptions that prove the depressing rule. They usually respond to erratic local demand. Few have expanded internationally. Even fewer engage in research and development.

Technology was supposed to be the great equalizer (with the rich, developed countries). It did not deliver on this promise. Unable to catch up with Western affluence and prosperity, the denizens of CEE are frustrated. They feel inferior, neglected, looked down upon, dictated to, and, in general, put down. New, ever-cheaper, technologies, thought the locals, would surely restore the rightful balance between impoverished East and filthy rich West. But the Internet - and even technologies such as cellular telephony - belong to those who can effectively deploy them (i.e., consumers in developed, infrastructure-rich, countries).

The news get worse.

The Internet is gradually permeated by commercial interests and going wireless. This convergence of content and business interests - means less access to the underprivileged. The digital divide is growing by the day. New technologies have done little to bridge this gap - on the contrary: they enhanced the productivity and economic growth (this is known as "The New Economy") of rich countries (mainly the United States) and left the have-nots in the dust.

The countries in transition also lack the proper legislative and law enforcement infrastructure (backed by the right cultural background). Property rights, contracts, intellectual property - are all new, often indigestible, concepts, emblems of Western hegemony and monopolistic practices. Widespread copyright violation, software piracy, and hacking are both status symbols and political declarations of sorts. Admittedly, the dissemination of illicit intellectual

products may have served to level the playing field. But now it is hindering entrepreneurship and holding back development.

After Asia, the countries in transition are the second largest centre of piracy. Software, films, even books - are copied and distributed quite freely and openly. There are street vendors who deal in the counterfeit products - but most of it is sold through stores and OEMs. This despite massive efforts (e.g., in Russia, Bulgaria, Ukraine, and, lately, in Macedonia) by software developers, licensed film libraries, and distributors - to fight these phenomena.

Intellectual property may go the way the pharmaceutical industry has. Content owners and distributors may team up with sponsors (multilateral institutions, private charities and donors). The latter will subsidize intellectual property and, thus, make it affordable to the denizens of poor countries. This is already happening in scholarly publishing.

This is very promising. But it far from leapfrogging development. In hindsight, leapfrogging may have been nothing but another of those intellectual fads whose time has gone before it ever came.

[Return](#)

THE AUTHOR

Shmuel (Sam) Vaknin

Curriculum Vitae

Born in 1961 in Qiryat-Yam, Israel.

Served in the Israeli Defence Force (1979-1982) in training and education units.

Education

Completed nine semesters in the Technion – Israel Institute of Technology, Haifa.

Ph.D. in Philosophy (dissertation: "[Time Asymmetry Revisited](#)") – [Pacific Western University, California](#), USA.

Graduate of numerous courses in Finance Theory and International Trading.

Certified [E-Commerce Concepts Analyst](#) by [Brainbench](#).

Certified in [Psychological Counselling Techniques](#) by [Brainbench](#).

Certified [Financial Analyst](#) by [Brainbench](#).

Full proficiency in Hebrew and in English.

Business Experience

1980 to 1983

Founder and co-owner of a chain of computerised information kiosks in Tel-Aviv, Israel.

1982 to 1985

Senior positions with the Nessim D. Gaon Group of Companies in Geneva, Paris and New-York (NOGA and APROFIM SA):

- Chief Analyst of Edible Commodities in the Group's Headquarters in Switzerland
- Manager of the Research and Analysis Division
- Manager of the Data Processing Division
- Project Manager of the Nigerian Computerised Census
- Vice President in charge of RND and Advanced Technologies
- Vice President in charge of Sovereign Debt Financing

1985 to 1986

Represented Canadian Venture Capital Funds in Israel.

1986 to 1987

General Manager of IPE Ltd. in London. The firm financed international multi-lateral countertrade and leasing transactions.

1988 to 1990

Co-founder and Director of "Mikbats-Tesuah", a portfolio management firm based in Tel-Aviv.

Activities included large-scale portfolio management, underwriting, forex trading and general financial advisory services.

1990 to Present

Freelance consultant to many of Israel's Blue-Chip firms, mainly on issues related to the capital markets in Israel, Canada, the UK and the USA.

Consultant to foreign RND ventures and to Governments on macro-economic matters.

Freelance journalist in various media in the United States.

1990 to 1995

President of the Israel chapter of the Professors World Peace Academy (PWPA) and (briefly) Israel representative of the "Washington Times".

1993 to 1994

Co-owner and Director of many business enterprises:

- The Omega and Energy Air-Conditioning Concern
 - AVP Financial Consultants
 - Handiman Legal Services
- Total annual turnover of the group: 10 million USD.

Co-owner, Director and Finance Manager of COSTI Ltd. – Israel's largest computerised information vendor and developer. Raised funds through a series of private placements locally in the USA, Canada and London.

1993 to 1996

Publisher and Editor of a Capital Markets Newsletter distributed by subscription only to dozens of subscribers countrywide.

In a legal precedent in 1995 – studied in business schools and law faculties across Israel – was tried for his role in an attempted takeover of Israel's Agriculture Bank.

Was interned in the State School of Prison Wardens.

Managed the Central School Library, wrote, published and lectured on various occasions.

Managed the Internet and International News Department of an Israeli mass media group, "Ha-Tikshoret and Namer".

Assistant in the Law Faculty in Tel-Aviv University (to Prof. S.G. Shoham).

1996 to 1999

Financial consultant to leading businesses in Macedonia, Russia and the Czech Republic.

Economic commentator in "[Nova Makedonija](#)", "[Dnevnik](#)", "Makedonija Denes", "Izvestia", "Argumenti i Fakti", "The Middle East Times", "[The New Presence](#)", "[Central Europe Review](#)", and other periodicals, and in the economic programs on various channels of Macedonian Television.

Chief Lecturer in courses in Macedonia organised by the Agency of Privatization, by the Stock Exchange, and by the Ministry of Trade.

1999 to 2002

Economic Advisor to the Government of the Republic of Macedonia and to the Ministry of Finance.

2001 to 2003

Senior Business Correspondent for [United Press International \(UPI\)](#).

2007 -

Associate Editor, [Global Politician](#)

Founding Analyst, [The Analyst Network](#)

Contributing Writer, [The American Chronicle Media Group](#)

Expert, [Self-growth.com](#)

2007-2008

Columnist and analyst in "[Nova Makedonija](#)", "Fokus", and "[Kapital](#)" (Macedonian papers and newsweeklies).

2008-

Member of the [Steering Committee for the Advancement of Healthcare in the Republic of Macedonia](#)

Advisor to the Minister of Health of Macedonia

Seminars and lectures on economic issues in various forums in Macedonia.

Web and Journalistic Activities

Author of extensive Web sites in:

– Psychology ("[Malignant Self Love](#)") - An [Open Directory Cool Site](#) for 8 years.

– Philosophy ("[Philosophical Musings](#)"),

– Economics and Geopolitics ("[World in Conflict and Transition](#)").

Owner of the [Narcissistic Abuse Study Lists](#) and the [Abusive Relationships Newsletter](#) (more than 6,000 members).

Owner of the [Economies in Conflict and Transition Study List](#) , the [Toxic Relationships Study List](#), and the [Links and Factoid Study List](#).

Editor of mental health disorders and Central and Eastern Europe categories in various Web directories ([Open Directory](#), [Search Europe](#), [Mentalhelp.net](#)).

Editor of the [Personality Disorders](#), Narcissistic Personality Disorder, the [Verbal and Emotional Abuse](#), and the [Spousal \(Domestic\) Abuse and Violence](#) topics on Suite 101 and [Bellaonline](#).

Columnist and commentator in "The New Presence", [United Press International \(UPI\)](#), InternetContent, eBookWeb, [PopMatters](#), [Global Politician](#), The [Analyst Network](#), Conservative Voice, The [American Chronicle Media Group](#), [eBookNet.org](#), and "[Central Europe Review](#)".

Publications and Awards

"Managing Investment Portfolios in States of Uncertainty", Limon Publishers, Tel-Aviv, 1988

"The Gambling Industry", Limon Publishers, Tel-Aviv, 1990

"[Requesting My Loved One – Short Stories](#)", Yedioth Aharonot, Tel-Aviv, 1997

"[The Suffering of Being Kafka](#)" (electronic book of Hebrew and English Short Fiction), Prague, 1998-2004

"The Macedonian Economy at a Crossroads – On the Way to a Healthier Economy" (dialogues with [Nikola Gruevski](#)), Skopje, 1998

["The Exporters' Pocketbook"](#), Ministry of Trade, Republic of Macedonia, Skopje, 1999

["Malignant Self Love – Narcissism Revisited"](#), Narcissus Publications, Prague, 1999-2007
(Read excerpts - click [here](#))

[The Narcissism Series](#) (e-books regarding relationships with abusive narcissists), Prague, 1999-2007

[Personality Disorders Revisited](#) (e-book about personality disorders), Prague, 2007

["After the Rain – How the West Lost the East"](#), Narcissus Publications in association with [Central Europe Review/CEENMI](#), Prague and Skopje, 2000

Winner of numerous awards, among them [Israel's Council of Culture and Art Prize for Maiden Prose](#) (1997), The Rotary Club Award for Social Studies (1976), and the Bilateral Relations Studies Award of the American Embassy in Israel (1978).

[Hundreds of professional articles](#) in all fields of finance and economics, and numerous articles dealing with geopolitical and political economic issues published in both print and Web periodicals in many countries.

[Many appearances in the electronic media](#) on subjects in philosophy and the sciences, and concerning economic matters.

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Read The Narcissism Book of Quotes (free) - Click [HERE!](#)

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Online Photo Exhibition: The Old-New Face of the Narcissist - Click [HERE!!!](#)

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[*A World in Conflict and Transition*](#)

[*Economies in Transition*](#)

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[*Archives of the Narcissistic Abuse List*](#)

[*Abusive Relationship Newsletter*](#)

[*Archives of the Economies in Conflict and Transition List*](#)

[*Buy Handmade Folk Ethnic Embroidery from Macedonia*](#)