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Digital Content And Web Technologies) by Sam Vaknin
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Sam Vaknin, Ph.D.

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Lidija Rangelovska - write to:

palma@unet.com.mk or to

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AUTHOR BIO:

Sam Vaknin is the author of Malignant Self Love - Narcissism Revisited and After the Rain - How the West Lost the East. He is a columnist for Central Europe Review and eBookWeb , a United Press International (UPI) Senior Business Correspondent, and the editor of mental health and Central East Europe categories in The Open Directory and Suite101 . Until recently, he served as the Economic Advisor to the Government of Macedonia.

Visit Sam's Web site at <http://samvak.tripod.com>

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Author: Sam Vaknin

Contact Info: palma@unet.com.mk; vaknin@link.com.mk

E-BOOKS AND E-PUBLISHING

The Future of Electronic Publishing

First published by United Press International (UPI)

By: Sam Vaknin

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 in-credible. Publishing is moving - albeit kicking and screaming - online.

The Disintermediation of Content

By: Sam Vaknin

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.

E(merging) Books
By: Sam Vaknin

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".

INVASION OF THE AMAZONS

By: Sam Vaknin

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.

Revolt of the Scholars

By: Sam Vaknin

<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 Sciendex'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.

The Kidnapping of Content

By: Sam Vaknin

<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 online 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.

The Miraculous Conversion

By: Sam Vaknin

<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 (Silicon Valley geeks and nerds). The assumption that the USA (let alone the rest of the world) is Silicon 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 - "morphogenic resonance" - which causes behaviour patterns to suddenly emerge 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.

The Medium and the Message

By: Sam Vaknin

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.

The Idea of Reference

By: Sam Vaknin

<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.

Will Content Ever be Profitable

By: Sam Vaknin

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.

Jamaican Overdrive - LDC's and LCD's

By: Sam Vaknin

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.

An Ambarrassment of Riches

By: Sam Vaknin

<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 (APA) 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 Envia 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 Envia 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.

The Fall and Fall of the P-Zine

By: Sam Vaknin

<http://home.wuliweb.com/index.shtml>

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

The circulation of print magazines has declined precipitously in the last 24 months. 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 convenient 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 cornucopia 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.

Consider Ploughshares, the Literary Journal. It is a venerable, not for profit, print journal published by Emerson College, now marking its 30th anniversary. It recently inaugurated its web sibling. The project consumed three years and \$125,000 (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 will offer free access to over 2,750 poems and short stories from past and current issues."

The more than 2000 (!) authors ever published in Ploughshares will each maintain a personal web page 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 will thus transform Ploughshares into a leading literary portal.

But Ploughshares did not stop at this standard features. A "bookshelf" will link 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.

It 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 adopt this service and make it their own.

The Internet and the Library

By: Sam Vaknin

"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.

A Brief History of the Book

By: Sam Vaknin

"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 redefine itself. Rights may have to be re-assigned, revenues redistributed, 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 typecasting 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.

The Affair of the Vanishing Content

By: Sam Vaknin

<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.

Revolt of the Poor - The Demise of Intellectual Property

By: Sam Vaknin

Three years ago 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 (1997), I won the coveted Prize of the Ministry of Education (for short prose). The prize money (a few thousand DMs) 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 50,000 DM to produce with a potential audience of 1000 purchasers (certain academic texts are like this) - would have to be priced at a minimum of 100 DM 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 10,000 DM to produce and is priced at 20 DM 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-deterring 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.

The Territorial Web

By: Sam Vaknin

The Net was supposed to dissolve anachronistic national borders and cultural boundaries. It was expected to vitiate 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 logically 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.

The In-Credible Web

By: Sam Vaknin

<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 cliches. 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.

Does Free Content - Sell?

By: Sam Vaknin

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 points 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))

Copyright Law and Free Online Scholarship

An Interview with Peter Suber

By: Sam Vaknin

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 are 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.

The Second Gutenberg
Interview with Michael Hart
By: Sam Vaknin
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 Gutenbergers *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?

The E-Books Evangelist

Interview with Glenn Sanders

By: Sam Vaknin, Ph.D.

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.

WEB TECHNOLOGIES AND TRENDS

Bright Planet, Deep Web

By: Sam Vaknin

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 covert intelligence 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.

<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.

The Polyglottal Internet

By: Sam Vaknin

<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:

"WordWalla 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 FAXSIMILE 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 polyglottal Internet a reality.

http://groups.google.com/groups/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.

Maps of Cyberspace

By: Sam Vaknin

"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 Universal Intuitive Interface

By: Sam Vaknin

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 and, thus, is non-transportable

(c) Lack of friendliness (i.e., the interfaces require specific knowledge and specific sequences of specific commands).

Even the most "user-friendly" interface is way too complicated for the typical user. The average PC is hundreds of times more complicated than your average TV. Even the VCR - far less complex than the PC - is a challenge. How many people use the full range of a VCR's options?

The ultimate interface, in my view, 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

It 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".

It must, therefore, be able to communicate with them in a natural language.

Its universe must be seamless (e.g., the physical or even system location of files or hardware or software or applets or servers or communication lines or information and so on - will 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 contest. It is a welcome transition - and long overdue.

Internet Advertising - What Went Wrong?

By: Sam Vaknin

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 on 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

By: Sam Vaknin

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, last August 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 - 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 last month and that spam has mushroomed 450 percent since June last year. PC World concurs. Between one seventh and one half of all e-mail messages are spam - 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.

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, ISP's 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 viruses.

Jupiter Media Matrix predicted last year that the number of spam messages annually received by a typical Internet user is bound to 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 next year.

More than 2.3 billion spam messages are sent daily. eMarketer puts the figures a lot lower at 76 billion messages this year.

By 2006, daily spam output will soar to c. 15 billion missives, says Radicati Group. Jupiter projects a more modest 268 billion annual messages by 2005. An average communication costs the spammer 0.00032 cents.

PC World quotes the European Union as pegging the bandwidth costs of spam worldwide 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 are projected to exceed \$88 million this year - 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 issue about a resurgence of anti-spam startups financed by eager venture capital.

ISP's are bent on preventing abuse - reported by victims - by expunging the accounts of spammers. But the latter simply switch ISP's 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 two 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, ISP's 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 ISP's, such as AT&T and PSINet have recurrently been accused of knowingly collaborating with spammers. ISP's 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 ISP's 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. Four states in the USA as well as the European parliament are following suit. Expensive and slow connections make this kind of 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 often find themselves in one or more black lists - their reputation and business ruined.

In January, 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 ISP's 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, 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 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 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 last year 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, three months ago, to restrict SMS spam. Confusion clearly reigns.

Don't Blink!

Interview with Jeff Harrow

By: Sam Vaknin

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!

The Case of the Compressed Image

By: Sam Vaknin, Ph.D.

Also published by United Press International (UPI)

Also Read:

The Disruptive Engine - Innovation and the Capitalist Dream

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-deterring 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.

THE INTERNET AND THE DIGITAL DIVIDE

The Internet - A Medium or a Message?

By: Sam Vaknin

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 beggining 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: PDAs (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 dystopia. 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 fulfills 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 hardcore 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 be include a hard (or optical)-disk-resident word processing software. But very few will buy 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 is 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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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.

The Internet in the Countries in Transition

By: Sam Vaknin

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 had 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 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 increased 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.

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 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 be 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.

President Clinton points 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 of material 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.

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.

The Selfish Net - The Semantic Web

By: Sam Vaknin

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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