

## **A Review of Current Issues Affecting the Future Marketability of Electronic Books**

**Sam Berner**

**March 18, 2001**

---

### TABLE OF CONTENTS:

1. Introduction
  - 1.1. Definitions of Electronic Books
  - 1.2. Potential Users
  - 1.3. Present Issues Affecting the Electronic Book Market
  - 1.4. Literature Search
2. Review of Current Issues
  - 2.1. Available Technology – the hype and the truth
  - 2.2. The Battle for Format
  - 2.3. Copyright – safeguarding what?
  - 2.4. e-Knowledge is E-xpensive
  - 2.5. The Myth of Permanence
  - 2.6. The “Empty Vessel”
  - 2.7. Reading Habits: From Scroll to Scroll + Eye Strain
  - 2.8. Environmental Issues
  - 2.9. Democracy of Access
  - 2.10. A Final Warning: Hold on to “Reality”
3. Future Predictions for the Market
  - 3.1. Potential Users
  - 3.2. Publishers and Technocrats
  - 3.3. The Sober Men in Black
4. Conclusion
  - 4.1. Pros and Cons of E-Books
  - 4.2. What's To Be Done?
5. APPENDIX A: Crunching the Numbers
6. REFERENCES

## 1. INTRODUCTION

Electronic books are taking an increasingly prominent position on every publisher's, book-dealer's and librarian's agenda. They are described, debated, studied, promoted and vilified. "Futurologists" wax lyrical about their perceived benefits, while "traditionalists" vent their bile and bemoan the demise of good reading. Paradoxically, both camps revert to electronic publishing to push their case.

Do electronic books have a future on the publishing market? If so, what would this future be? Does the advent of electronic books indicate the slow decline and fall of the printed word? This report attempts to critically review the opinions of both the supporters and the sceptics, and discusses the issues affecting the future of electronic books as a marketable commodity.

### 1.1. *Definitions of Terms Used in the Report*

The literature search for this report produced a number of different definitions of electronically produced material. These definitions ranged from a very broad one of Shapiro and Varian (1999) which incorporates the wider semantic meaning of the term "information goods" to the narrow definition of Brunelle (2000) as coded and/or encrypted data. Considering that there is no formally recognised definition of "electronic publication" (Armstrong & Lonsdale, 1998), the term "**electronic text**" in this report refers to

- electronically produced text (digitised)
- in various formats (HTML, XML, DOC, PDF, etc.),
- original or transferred to electronic format under conditions of conformity with copyright law
- stored in a digital medium (CDROM, on a hard disk, a floppy diskette or a ZIPDISK) and
- displayed using an electronic hardware device.

Since the electronic publishing technology is a rapidly developing one, this definition is in danger of fast becoming obsolete. Electronic books can contain interactive content in multimedia formats.

The terms "**electronic reader**" and "**electronic book**" refer to any hardware device used to render electronic text human-readable. Such devices include Personal Computers, Laptops and Hand-held Devices, as well as mobile telephones using WAP (Wireless Application Protocol) software and PDE's (Personal Digital Assistants), just to mention a few.

The term "**electronic reading software**" refers in this report to all software packages capable of changing electronic text into a human-readable format and vice versa; these include among others such applications as MS Word, Adobe Acrobat Reader, Internet Explorer browsers, and many more.

The term "**electronic publishing**" was taken to mean creating/transforming texts in any computer-mediated format: diskette, CD-ROM or via the Internet.

The term "**multimedia**" denotes the presentation of information on a hardware device using a combination of text, sound, graphics, animation and video.

The term "**marketability**" in the context of this publication denotes not only the readiness of a device (software, text) to be sold, but also the availability of a market niche and a level of interest in that particular item sufficient to make mass production profitable.

### 1.2. *Potential Users*

For an item or service to be marketable, a market niche needs to be present. It has been suggested that there exist identifiable population sectors that would find particular aspects of electronic books superior to their printed equivalents. These sectors are:

- students using reference textbooks

## A Review of Current Issues Affecting the Future Marketability of Electronic Books

- academics who feel stalled in their research by inordinate review periods
- professionals using materials that need continual updating.
- business and leisure travellers who carry their reading material with them on their journeys.
- physically challenged persons.
- artists keen at exploring new design media
- creative writers who fail to access print publishing industry

Section 3.1 aims at examining the extent to which the above suggestion is supported in real life.

### 1.3. *Present Issues Affecting the Electronic Book Market*

This report reviews the benefits and shortcomings of electronic books as compared with printed material. Issues addressed are:

- Available Technology
- Different/Incompatible Formats
- Copyright
- Cost
- Storage of Materials
- Content
- Reading Habits
- Environmental Issues
- Social Aspects

An assessment of how each of the above issues affects the marketability of electronic bodies is presented. The report concludes with a proposal of issues in need of rectification if electronic books are to reach the desired level of marketability.

### 1.4. *Literature Search*

A comprehensive literature search was undertaken using both electronic and hard-copy resources.

Online Resources used were e-journals from the online Emerald Library, articles found through web searches executed on Northernlight.com, Yahoo.com and Alta Vista.com. Further full text articles were obtained from the proprietary databases based at the website of Brisbane City Council Library (EBSCO), Australian Public Affairs Information Service Database (APAIS) and Periodicals on Disc database situated at the Queensland State Library.

Hard copy resources were procured through the computer based catalogue of the Queensland State Library, University of Queensland and Queensland University of Technology.

Press reports and news clips from publishers' websites were identified and used in this report.

The author tried to limit the literature to the period 1998-2001, which parallels the major breakthroughs of the technology. However, older sources were used when tracing the origins of electronic publishing.

## 2. FUTURE PREDICTIONS FOR THE MARKET

### 2.1. *Available Technology – the hype and the truth*

The hardware devices currently available on the market range from ones dedicated solely to the purpose of storing and retrieving electronic texts, to ones that have this functionality as part of a larger set of functions.

In the first group are the first two viable electronic readers: SoftBook Reader and Rocket eBook. SoftBook was manufactured in USA by SoftBook Press Inc., is a size of a large notebook, has a leather cover, and weighs 2.9 pounds. Titles are opened by tapping a small stylus that comes with the device. The stylus is especially useful for annotating, highlighting and underlining information in the text; but the SoftBook doesn't

recognize handwriting. The screen is not quite big enough to display a single page of a hardcover book (9.5" diagonally). To load the SoftBook with "content," the user simply plugs any standard phone line into the SoftBook's built-in modem port and taps a connection icon on the screen, and the SoftBook will do the rest. No desktop computer is needed. SoftBook is fully OEB compliant (EOB stands for OPEN ELECTRONIC BOOK format – see section 2.2). The SoftBook was intended to target a higher-end market. The battery life is short and it is inconvenient to browse for books without an external keyboard.

The RocketBook was manufactured by NovuMedia, also a USA-based company, simultaneously with the SoftBook. The RocketBook was aimed at entry-level, leisure/novel readers. It has a built-in lithium battery for 15 to 35 hours of use, supports SmartMedia and has enough memory to hold up to 4,000 pages of text and MP3 music files and graphics. It also holds a dictionary and supports adjustable fonts, multiple bookmarks, and encryption. It is roughly the size of a large paperback book and, with its docking cradle, weighs 20 ounces. The screen has a backlight capacity and is slightly more readable than the one on the SoftBook, and it can be easily used with just one hand. RocketBook links indirectly to the online bookstore, via a cradle that connects to a personal computer. Users will go to a Web site to download books and other information, first into the PC and then into the electronic book.

Both companies have been acquired by Gemstar in January 2000, for \$400 million dollars. Although the production of both SoftBook and RocketBook has stopped, Gemstar still provides technical support for the two devices. Gemstar has since manufactured two of its own e-readers: RCA REB1100 and the more upscale RCA REB1200. These readers have a screen resolution six and twelve times that of a Palm device. The REB1100 model has a 5.5" screen, while the REB1200 sports a larger, 8.5" screen. Both devices are still to see the light, as pricing seems to be a major concern.

Franklin Electronic Publishing eBookman, launched in 2001, is a far cry from its initial 1992 cartridge-based device. It combines an e-reader with the functionality of a Personal Digital Assistant, can play audio files, can record human voice and recognise handwriting. It has an enhanced LCD screen with a backlight. There are three models available: EBM-900, EBM-901 and EBM-911. The last of the three runs on 2 AAA batteries, and has 8 MB of RAM. A good review of Franklin's eBookman can be found at the CNN website by Gibbs (2000)

The greatest "mystery" of all the e-readers is the much written about EB Dedicated Reader. The first mention in the press was in 1998, with hopeful "will be due" littering the promising reviews from 1999 to 2001. The EB Reader is supposed to sport a two panel, colour-supporting, full-size screen, at 450 dpi resolution, giving it a "bookish" format. The Reader is designed to use the Adobe PDF format, and pricing is exorbitant in comparison to the devices already mentioned. Hogan (1999) has a good review of the EB Reader and its producing company Everybook, Inc.

Some objective descriptions of these devices can be found in Gillmore (1998), Dorschner (2000), Dritsas (2000), and Terry (1999). Steve Silberman (1998), in WIREd, wrote an excellent article on the history of these various devices.

Electronic text can be also read on devices ranging from a desktop PC to a WAP cell-phone, at varying degrees of frustration and discomfort. As these devices have other functions besides trying to emulate books, this report will not investigate them in depth. Table 1 provides an overview of all available devices and their pricing.

Microsoft has also shown strong interest in the electronic publishing market. Aware that screen resolution is one of major setbacks in the field, technical staff at Microsoft has developed the Microsoft Reader, a software featuring Clear Type technology which is now embedded in the brand new Windows ME version. However, the MS Reader only functions on LCD screens, and not on all of them either. Clients with legacy cathode-ray-tube technology have been informed by Microsoft to solve their problem by "pressing the Off button" (CM Bulletin, 1998). The Reader purports the user to concentrate on the text by its complete absence of on-screen icons or navigational tools. It only allows a limited choice of font size.

Not to be outdone, Adobe has launched its own battle on the electronic publishing market. Adobe has one of the greatest user bases among software manufactures, with alleged 60 million users having downloaded

its free Acrobat Reader. The company has released the Adobe Acrobat eBook Reader and the Adobe Content Server. The later software secures and prepares PDF files for online distribution and purchase. However, Adobe is targeting niche markets, concentrating on education and professionals who have to carry large amount of documents around. The benefits of PDF are that pages captured by this technology look just like they would on paper, and the layout is preserved. Adobe alleges that majority of non-fiction material already online is in PDF format, and that by adopting their technology publishers will have zero conversion costs. Another advantage over MS Reader and other proprietary software is that Adobe's e-text can be printed. However, from the writer's personal experience, files saved in PDF format have two serious drawbacks: 1) if graphics are saved within the text, the file tends to be of monstrous proportions and compressing it doesn't diminish the size, and 2) if the specialized fonts used in a document are not available to the operating system, the reader will use its proprietary screen drawing routines to simulate the appearance of the font, making only parts of the text accessible.

A third company, Glassbook INC, [ <http://www.glassbook.com> ] developed its own freeware Glassbook Reader. The Reader permits addition of personal bookmarks to pages, enlargement of text and graphics, conduct searches, and print sections of the book (if permitted by copyright). The Plus version also has such added features as the American Heritage Dictionary of the English Language, the ability to annotate book passages, and permission to give or lend a book to another individual. Readers allow laptop users to turn the computer on its side to read the text, almost emulating an open print book. Glassbook will also market Glassbook Publisher, Glassbook Bookseller, Glassbook Library Server, and Glassbook Bookstore Kiosk, providing the industry with various tools to bring electronic books to readers. Adobe purchased Glassbook in 2000, and is now using the software for its own publications..

There are some highly visionary attempts in the technological market to "improve" on text. Into this category fall such fanciful items as Xerox "Reading Eye Dogs": a combination of camera eye and speech technology robot in the shape of a dog; "Tilty Tables", comprising large glowing screens providing an "eye" onto a vast document otherwise invisible; and even a "Speeder Reader" madness propelling 700-800 words per minute towards the viewer's eye (Farmanfarmaian, 2001). It is the author's opinion that such items belong to the science museums as curiosities to entertain, and have little, if any, marketable value.

On the more practical side, there have been serious attempts at developing electrophoretic ink and electronic paper. E-ink [ <http://www.eink.com> ] has been researched by MIT Media Lab. It uses switchable capsules of ink that can flip when charged from black to white, providing high contrast. This technology aims at approximating the clarity of printed paper. Depending on what the user wants to read, the e-ink could erase and redraw new text and graphics. IBM, Motorola, Lucent, and other technology companies are attempting to create thin, flexible sheets that look and feel like paper, have paper's functionality and flexibility and yet can hold an electronic charge and display electronic text. Using e-ink's conductivity as an antenna, MIT Lab hopes to be able to create "Radio Paper" – a medium that acts as a permanent FM receiver. The aim is to produce material that is suited to prolonged reading without the accompanying eye-strain, while at the same time permitting constant change of content (Negroponte and Jacobson, 1997). It will be many years yet before these promising technologies come to fruition. Ross Thompson (1999) and Kavin Maney (1999) both provide an update on the subject.

Night Kitchen Media [ [www.nightkitchen.com](http://www.nightkitchen.com) ] has also developed, apparently over the past 10 years, a software called TK-3 that permits users to create their own multimedia book. Unfortunately, for the duration of the research undertaken, the company's URL address returned an unknown host response.

Overall, it can be deduced from the available literature on the subject that technology pertaining to reading and creating electronic text is still in its initial stages of development, and that it is difficult at this early stage to forecast how it will change the way in which electronic text becomes accessible to users.

## 2.2. *The Battle for Format*

One of the main problems facing the electronic publishing industry is the multiplicity of e-book formats, some of which are not cross-platform and not mutually compatible. This leads to a situation where the buyer is faced with either having to buy a number of different devices, or having to limit his/her choices to just one set of content. The problem is mentioned in all literature, regardless to the writer's personal bias for or

against the e-book as such. However, it seems that the publishing industry has a different view; they point out that different e-books may work better in different formats. However, what is really at stake is a US\$100 billion market of which every company is trying to get as big a portion as it can. The other factor is copyright – it appears publishers will stick to their different formats for fear that a common format will be too easy to hack.

Currently, two formats are on the top of the competing list. These are HTML (Hyper-text Mark-up Language) used on most web pages, and PDF (Portable Document Format) proprietary to Adobe. According to Seybold report on Internet Publishing (1999), two major consortiums are trying to set a unified standard: the Open Ebook Forum (OEB) [<http://www.openbook.org>] and Electronic Book Exchange (EBX) [<http://www.ebxwg.com>].

OEB has been developed by a team of academics and industry professionals, with major input from Microsoft. It has been approved by leading eBook, print publishers, online booksellers and many others. According to Shah (1999) and Terry (1999) the standard addresses format, layout, compatibility, printing concerns, and the specification's relationship to the various Web document standards (including XML and HTML). The **Open eBook (OEB) Publication Structure Specification 1.0** [<http://www.openebook.org/specification.htm>] was released in late September 9, 1999.

EBX supports both the Open eBook format (which incorporates HTML) and Adobe Systems' Portable Document Format. It is cross-platform, and allows users to download materials on a variety of devices. The standard incorporates e-commerce and is encrypted for copyright protection, does allowing one copy per user access. It does, however, apparently permit borrowing, loaning and gift-exchanging. The EBX standard was developed by Massachusetts-based Glassbook in 1999, a consumer-electronics/e-book startup, which was later bought by Adobe. Other members of the EBX Working group include Amazon.com, Adobe Systems, publishers Houghton-Mifflin Co., Lightning Print and Philips Electronics. Microsoft, HarperCollins and Xerox also participated in the consortium (Quan, 1999).

Despite the attempts at creating a common standard, the debate over which one to use and whether an open-distribution or even super-distribution standard (ability to move the same e-text among different devices) is necessary, do not seem to promote agreement. A number of older devices, such as the SoftBook and Rocket eBook, still use their proprietary standards, although they support the EBX standard as well. There is also the question how both OEB and EBX will support unusual formats, such as books aimed at people with disabilities, and where it fits with libraries' need to catalogue. This later issue is being addressed by the Association of American Publishers, who have developed a descriptive standard called ONIX (Online Information Exchange), something akin to a Cataloguing-in-Publication for electronic texts.

### 2.3. *Copyright – safeguarding what?*

The report has found that the major reason preventing traditional publishers from whole-heartedly throwing themselves into the new electronic publishing market lies in their pockets. Two issues cause the reluctance to invest: copyright and transition costs. The second will be discussed in Section 2.4. Here we will concentrate on the first issue, namely copyright.

Copyright is defined by Canoy (2000) as "the right of an author to control the exploitation of his intellectual creation." The author of this report does not fully agree with this definition, as it seems that the majority of copyrights in the book industry lie with publishers, not authors, who sell them for royalties and advances. However, Canoy qualifies the definition by saying that the term "exploitation" refers to both the right to make a work public and its reproduction. Copyright exists automatically when a work is created, provided that the work exhibits some form of originality, is material and a result of creative process.

Faced with a totally new and abruptly changing environment of electronic publishing, legal minds have coined a new term – e-rights. Rich (1997) describes e-right as the right to place a literary work on an electronic medium, but warns that contracts should contain a well-defined clause on "future technology" to ensure they have the right to "create a derivative work in a technology" not yet developed or even conceived of. This all encompassing definition of electronic rights renders them virtually limitless.

While copyright provides the incentive to authors and publishers to create information and make it available, some sectors of the publishing industry worry that a rigorous copyright regime may lead to underutilization. However, majority of publishing and government bodies have engaged in an increasingly stringent copyright activity, creating digital rights management companies (DRM) which promise unlimited security to publishers and eternal damnation to copyright violators, by encrypting electronic texts to a degree rendering them almost unusable.

The panic attack that led to an increasing number of publishing companies to espouse such encryption measures is the notorious Napster case. In his article on piracy, White (1999) mentions a free software called FreeNet, which is causing the book industry serious misgivings. Like Napster, it permits free exchange of text and graphics files. Unlike Napster, it does not need a resident server, making it much more difficult to police. Andersen Consulting Ken Mifflin says that if getting unauthorized access to e-books through the Web becomes widespread, sales will decline. However, his proposition is to influence the moral climate among readers. It is not clear how such a noble end could be achieved, and if it can be achieved at all, considering that the electronic books are pricey. An opposite view is espoused by Tim O'Reilly (O'Reilly and Associates) who says that lowering prices will make it unworthwhile for pirates to engage in their activity.

Copyright may be good for sales, but it is a major obstacle to public access in libraries. How copyright affects public and academic libraries will be discussed in detail in Section 2.9. Other issues arising from stringent copyright regimes are the lack of freedom of information and the possibility of monopolising information by a particular sector of the society to the detriment of democracy.

Canoy (2000) noted that piracy and forgery in markets for information goods is wide-spread. Although this applies to music, the small number of people who engage in extensive on-line reading does not as yet warrant the over-reaction of the book industry. The continuous upgrading of legal agreements and endless licenses increasing the cost of production and distribution, thus impinging negatively on the industry. There have been suggestions that what the rapidly changing technology needs is not more copyright, but a different approach to intellectual property, maybe even a different business plan that could accommodate the hazards and change them into benefits.

#### *2.4. e-Knowledge is E-xpensive*

In the book industry, the fixed costs are high (it is expensive to produce the original), while the marginal costs (production of copies) are low. Costs affect pricing, and pricing affects sellability of an item. Although a number of sources maintain that electronic publishing will decrease cost production, and as such lower prices of electronic texts, this assumption does not seem to be verified by reality. This report proposes to look at the reasons why e-texts are not cheaper than their printed counterparts.

It has to be said at the outset that most of the initial costs of obtaining access to electronic text lies in the hardware. Table 1 gives an overview of the different devices available on the market and their prices. But once a device is bought (notwithstanding the possibility of having to buy another one due to the lack of standard formats), the cost of the content should be cheap. The fact is that it is not.

In his feasibility study for public libraries, Rippel (2000) provides a comparison of Rocket e-books and corresponding printed texts from Barnes and Noble. The e-text is equivalent in price to the hardback version, if one exists, or 90% of the paperback if there is no hardback version. If both versions exist, the e-text cost falls in between the two prices. Text in Microsoft Format reader is only slightly less expensive.

Hogan (1999) implies that electronic books will never reach the price of paperbacks or magazines, thus limiting potential buyers to certain specific categories: doctors, lawyers, engineers and IT specialists. His view was echoed by EveryBook's staff, who say that paperbacks are just too cheap to beat (Lewis, 1998). As such, content providers are not aiming at the leisure market as yet.

Among the many reasons given by different publishers for the high content cost is that e-texts are too expensive to design and build if they have value-adding multimedia (Brown, 2001); software licensing or commissioning, considerable costs in the mastering process; copyright costs; the highly labour-intensive review process (Armstrong and Lonsdale, 1998); text conversion process; unwillingness to invest by financial

institutions still wary of emerging technologies; startup costs and fear about adjusting to change (Dorschner, 2000).

Market analysts, on the other hand, state that electronic publishing perceptibly lowers marginal costs by almost eliminating costs of paper, printing, binding, shipping and storage. Authors, who usually get only 6% of the cover price in royalties, complain that the adoption of electronic publishing is another plot to increase the publisher's profits at their expense. For authors, a decrease in content price does not bode well, unless publishers are willing to increase the royalties (Lardner, 1999)

As in any other technology sector, as the industry matures, so will the prices drop. Whereas the hardware devices have dropped in price from the forbidding range of \$500 to a more humane \$200, with an outlook over the next few years of dropping to as low as \$100, the same cannot be said of content. In the age of information super-highways and overload, the life cycle of the average information good has decreased, meaning that publishers have to make up for their investment in content in less time than ever before. It is hoped, however, that as competition increases and production technology improves, content price will eventually drop down.

## 2.5. *The Myth of Permanence*

From the cuneiform tablets of the Assyrians, through Egyptian papyri, Roman parchments, French rag-paper, Jefferson's Declaration on hemp and finally the notorious acid-paper, the printed word's permanency seems to be in decline. With the advent of electronic storage media, the situation does not seem to improve. In a highly passionate article, Sottong (1999) argues that with the maximum age of electronic storage media being 100 years, it would be unwise to deposit all our cultural heritage on them. Sottong provides a number of examples of how parts of the USA archives disappeared when the media they were stored on deteriorated. Another issue raised by him is the obsolescence of hardware that reads a particular medium, and the costs involved with migrating the e-text to a newer medium when the old one becomes obsolete.

Deterioration over time and obsolescence on one side, those responsible for archiving and storing our literary heritage will have to come to terms with such disasters as sudden crashes of main server, data corruption, electricity surges, hacking and user vandalism. Armstrong and Lonsdale (1998), both librarians of long standing, point out in their paper that the first line of defence against loss of valuable data lies with its creators, providers and owners – the existence of a sufficient number of trusted organisations capable of storing, migrating and providing access being a critical component.

No one better expressed the dilemma of storage than Richard Lucier, executive director of the California Digital Library in the University of California. When asked by the audience at the Society for Scholarly Publishing 20th-anniversary meeting in San Diego, how his library archived electronic materials, he responded: "We print them out. On acid-free paper, that is."(Guernsey,1998).

The dedicated devices used for reading electronic text, such as the SoftBook, Rocket eBook and Franklin's Bookman are all rather fragile. In comparison to printed books, they break easily, and cannot be left exposed to sun or water. As Eric Goss, the group product manager for e-books at Amazon.com stated at BookExpo America 2000 trade show, the print book is a "great technology. Nothing has come along to supersede the printed book in 400 years. Right now, this is a superior technology" (Reardon, 2000).

Notwithstanding the archiving problems mentioned above, countries facing serious storage problems, such as China and Japan, are wholeheartedly embracing electronic storage media such as CD-ROMs. The economic pressures on Japan's publishers today are so great that they cannot afford to keep even classical great works in print, even in the paperback format (Honco, 1999). But the matter remains unresolved until such time as the technology has provided us with a solution as permanent as the Codex of Hammurabi.

## 2.6. *The "empty vessel"*

*The digital "book" you carry in your purse or briefcase is an empty vessel.*  
(Silberman, 1998)

When Silberman wrote these words in his 1998 article, he was optimistic. Three years later, the vessels are still awaiting the deluge of good reading material. Apart from encyclopaedia, dictionaries and other reference materials on CD-ROM, and scores of questionable texts in HTML littering the cyberspace, there is little of value that would compare to a brick and mortar bookshop or even a small public library.

Brown (2001) argues that since good value content (mostly non-fiction) belongs to the larger publishing houses, so does the power to either grant it or withhold it from the technocrats who produce electronic books. Unless a business model is created that would make publishing houses participate, the devices remain but "empty vessels." So dotcoms and publishers are joining forces, technocrats actively wooing content owners, and both parties wooing the customers.

Many content owners are prevented from making their most popular titles available to consumers online because of what they perceive as lack of guarantees that the material is safe from pirated copying.

Jupiter Media, an internet research group from USA, predicts that general interest books market is limited, but that substantial money could be found in e-textbooks which will make up to 6.5% of textbook sales by 2005. Following this advice, such large publishing houses as Houghton Mifflin, McGraw-Hill, Pearson, Thomson learning and John Wiley & Sons are focusing on the academic market. Considering the low percentage of sales, and the number of competitors, this report is unable to verify how converting textbooks into an electronic format is going to make them more marketable.

More enterprising, Kang (2000) reported that two USA companies, Sylvan Learning Systems and Aether Systems, a wireless data and products services company, embarked on a \$70-million education venture called MindSurf: a mobile computing company launched specifically to use wireless technology to bring real-time information, including books, course materials and other content, into k-12 classrooms.

In 1997, Cambridge University Press started an "asset management store" – a prototype of customer-tailored publishing. Authors could choose necessary components and even publish parts of a monograph before the whole was ready (Armstrong & Lonsdale, 1998).

O'Reilly and Associates is reported to have launched a "knowledge interface" called Safari, which permits its subscribers to search and brows books at a full-text level (Tennant, 2000)

On the other hand, authors who have faced rejection by established publishing houses, are increasingly reverting to the Internet to self-publish their works. However, much of this type of content lacks serious reviewing and editing, as well as marketing, and at this point in time cannot compete with printed materials.

It is still very early to make any sweeping forecasts regarding the type and quality of e-content. Ohler (2001) predicts that leisure books, textbooks, and manuals will go electronic, while those publications that are enhanced by printing will remain in hard copy. There are quite a few of online bookstores and libraries that provide e-content, some for free, some for a fee, and a few on pay-as-you-read basis. But majority of these e-texts are journals, research papers and articles, followed by business books, books about software and computers and a few textbooks. For an overview of what is available, the author suggests a 1998 article in Fortune's Technology Buyer's Guide Special Issue, Winter 1999, entitled "Movable Type" [<http://library.northernlight.com/SG19990714120011317.html?cb=13&sc=0#doc>]. Ardito (2000) also provides an updated list of content providers.

Those at the forefront of e-text selling are Amazon.com, Barnes and Noble, Powell, and FatBrain. Publishers specialising solely in electronic texts are few, but they are on the increase – most of them deal in romance and science fiction vanity publishing. Among the more serious players are Peanut Press, Online Originals, Books2Read, MetaText and NetLibrary.

Publishers and booksellers are aware that content has to improve to make the e-book marketable. The majority, however, are not yet targeting the mainstream market, opting for the assumption that professionals, academics and scholars who have to buy expensive textbooks that quickly go out of date will be willing to pay more for the comfort of better portability and quicker updates.

### 2.7. *Reading Habits: From Scroll to Scroll + Eye Strain*

The report found two opposing views on the feasibility of reading from a display monitor. The first view, promoted by writers who are also strongly vocal on the superiority of print over electronic media, can be summarised in that current display technology, with its low resolution, is nowhere near the very high resolution of a printed page (Sottong 1999). As a result, reading for long periods off a monitor causes serious eye-strain, does not assist prolonged concentration and even promotes illiteracy by keeping information from the poor and technologically unsavvy masses (Johnson, 2000). In a scathing article Kogawa Tetsuo (1998) claims that the modern tendency to render text easier by adding graphics only makes readers too lazy to probe into the integrity of the text itself. He also maintains that the transition from print to electronic media is not a replacement, but a deconstruction of the former by the latter. For Lamson and Simons (1995) interactivity is a relinquishing of control over the text, making it easy to get lost.

The proponents of the second view - although agreeing out of necessity that the resolution issue exists and that it will be some time before it is resolved - went to great length to propound the view that there is no medical proof that reading off a monitor caused eye sight to deteriorate, and that the newer generation, bred on computers, video-films and WAPs, will evolve into screen reading creatures who will shun books for electronic text (Austen, 2000).

Somewhere in between these two views are the visionaries. Xerox Parc (of the Reading Eye Dog fame) maintains that reading pure text, something most literate people do nowadays, is a recent phenomenon, and that in the past, text was always enhanced by graphics (Farmanfarmaian, 2001). Others (Armstrong and Lonsdale, 1998) still maintain that e-texts, with its added hypertext, enhance intellectual content. This will change the readers perception of the text; that text will never again be linear, and that this new non-linear reading will enhance creativity and promote connectivity – a “digital galaxy”. A new reading motto was coined: “I link, therefore I am” (Ohler, 2001). Rheingold (1999) sees in this new interconnectivity a radical democratization of publishing; Chartier (1999) among many others, calls e-books an “electronic text revolution” which encompasses the medium, the message and the reading of it.

Apparently, 70% of computer operators complain at some stage of eye discomfort, as staring at the screen for prolonged time leads to a drop in blinking rate. Austen (2000) quotes Dr James Sheedy, Clinical professor of Optometry at the University of California as saying a number of factors cause eye strain during prolonged staring at a display monitor: the contrast between characters, font size, spacing between letters, serifs, rate of flickering and evenness of image across the screen. The general eye fatigue, accompanied by stiffness of neck, shoulder and back, headaches and difficulty in focusing is now known as the Computer Vision Syndrome.

Content owners complain that the computer industry ignores people who can't read on a monitor, because there is no profit in it for them. Since most of the culturally valuable content is in textual format, it does not increase profits by permitting the addition of multiple features (Honco, 1998)

Theoreticians and optimists aside, the report found that the level of dissatisfaction with the current display resolution is, in fact, reasonably high and warranted. The small size of most of these display monitors, and the subsequent need to scroll text horizontally and vertically, only adds to the reading difficulty. Most of the dedicated e-readers have monochrome screens, thus rendering graphics at an inferior quality. It is expected that majority of people who would want to buy an e-reader, will not be doing so for philosophical reasons or out of environmental concern, and that if reading off a monitor does not provide them with the comfort they are accustomed to in books, then sales of the device will decrease.

### 2.8. *Environmental Issues*

The report found that a number of proponents of electronic text and devices see them as a solution to such environmental issues as deforestation. This is especially clear in writings by South East Asian proponents (Japan, China, India and Thailand). Although these proponents agree that the printed medium is the more “stable” one, they see environmental degradation as a high price to pay for this stability (Tetsuo, 1998)

Statistics show a direct correlation between the growth of a country's GDP and the demand for paper. As the developing world continues to industrialize, this demand may further deplete sustainable forests -- and create a subsequent scarcity of paper required by government, business, education, publishing and daily use. China has already suffered environmental disasters due to deforestation. Paper crisis there leads to scarcity of public libraries, books and newspapers. The Chinese government is strongly supporting electronic text ventures, seeing in it a solution to the high illiteracy rate (Zhiming, 1999). However, economics limit the extent to which other less advanced nations in other parts of the world can rely on electronic media to reduce their demand for paper. Unless the more advanced nations help offset paper consumption, the crisis will continue.

It has been found, however, that the advanced nations are nowhere near reducing paper consumption. On the contrary, the more information we produce, the more paper we waste. Chizuko (1999) bemoans the "low-tech era of handwritten or typed manuscripts", when no one had the luxury of printing one draft after another of long documents. The book industry is as much to blame as offices and academic institutions: many a book is over-printed, to end as waste paper when no one wants to buy the content.

It is possible that effects of deforestation could be minimised, provided that display technology allows users to read off their monitors in comfort, and that enough effort and money is spent at training content creators in publishing technology. Whether the leaders of publishing industry would be interested in possibly creating for themselves competition in the form of technologically adept content creators, is another valid question. A third important point is that unless e-readers become accessible in public stores at the same price as paperbacks, there will be not enough infrastructure to facilitate saving the environment. Whether an increase in electricity consumption would add to the current ozone layer problem when everybody in the world owns a computer, is also impinging on the subject.

It cannot therefore be said that electronic books are in any way "environmentally friendly". If anything, they only add to the amount of bio-nondegradable junk accumulating on the surface of the world. Electronic text, increasing by the nano-second, is definitely environmentally unfriendly, as it has a peculiar effect of wanting users to press the "Print" button.

## 2.9. *Democracy of Access*

This section looks at two issues. Firstly, it discusses how copyright laws restrict access to electronic information in the public domain and secondly, how converting printed matter into electronic access can sustain inequity by creating an information underdog, thus undermining basic tenets of democracy.

It has been found that libraries were in general willing to embrace the new technology (Ardito, 2000). This willingness is qualified by a number of obstacles libraries face when attempting to provide electronic media to the public. Among these obstacles are issues such as on-going costs of equipment, training staff and upgrading; lack of technical support, lack of bibliographic data electronic texts; impermanence of electronic texts; and difficulty in making choices as to which medium to provide to users (Armstrong and Lonsdale, 1998; also Rippel, 2000).

But the foremost of these obstacles is the current state of copyright law. Libraries that have adopted the electronically browsable resources did so because of placing more value on availability and deliverability than on the size of the collection (Harloe and Budd, 1994). These libraries saw as obvious benefits the ability to provide a 24 hour service, 7 days a week; the perceived lowering of theft and damage of library material; multiple secure access, and saving on physical storage (Hacene et al., 1999; also Kovacs, 1999). These libraries then run into difficulties concerning licensing agreements with both the publishers and the e-book vendors, who wanted each user to be lectured on the issues of copyright before checking out a device. Copyright issues also precluded multiple use of the same electronic title, forcing libraries to buy multiple copies of the same text (Brunnelle, 2000). Libraries that wanted to digitalise their reserve materials had to go through convoluted copyright procedures (Rawlinson, 2000). Other academic libraries willing to electronically publish monographs written by the academic staff faced reluctance on the part of the writers themselves, who feared that placing their research online was not providing them with enough protection, despite copyright being an automatic law. (Armstrong and Lonsdale, 1998). To make things even more difficult,

publishers of e-content encrypt the content with software locks. This software is also protected by copyright law (Smith, 1998).

In most countries, access to information in libraries is enhanced by various copyright exceptions, the most famous being fair use or fair dealing which allow a student or researcher to copy sometimes whole works to advance their education or their research. Other exceptions also exist which ensure that copyright does not act as too great a barrier to information in the print environment. However, last year, the USA Library of Congress issued only two exemptions from a statute in the Digital Millennium Copyright Act of 1998, none of which aforesaid exemption permitted fair use. The American Library Association is contemplating legal action, arguing that such a stringent copyright regime leads to a "pay-for-use" situation totally at odds with the role of public libraries (Milliot, 2000).

A similar situation is developing in Australia (Hacene et al, 1999). The Copyright Amendment (Digital Agenda) Bill of 1999 is before the Australian parliament. The Bill proposes the extension of current exemptions to online environment. The amendment is strongly opposed by Copyright Agency Limited (CAL), a digital rights group, which wants the already existing amendments scrapped. CAL sees these exceptions as weak spots in their electronic business plans, and a number of publishers even called fair use piracy. If CAL succeeds, academic libraries in Australia will not be able to embrace e-texts to any useful extent. Libraries need publishers to follow fair use to provide barrier-free purchasing of materials and display technology.

In a very controversial paper presented at the 66th IFLA Council and General Conference in Jerusalem, Nick Smith (1998), the Copyright Advisor, Australian Libraries Copyright Committee and Executive Officer, Australian Digital Alliance stated that copyright is a barrier freedom of access to information and freedom of expression. He pointed out that copyright restriction only increase, and that subsequent extensions of copyright terms have serious implications for access to information, removing more and more material from public domain. Much of this material, he reasoned, is not worth protecting in the first place. Smith also pointed out that with the current copyright restrictions, making a temporary copy on a users PC needs a license. This implies that the very act of reading an e-text needs licensing, giving publishers a monopoly over it. The logical conclusion is that if someone else has the right to decide who reads what, when and how, then this constitutes a serious breach of the right to free expression, thus undermining democratic process.

On the strength of the above findings, it can be said that e-readers and their content will encourage elitism in the information market. Those who can pay will have access to information/knowledge, while those who can't, and have so far depended on the public institutions for obtaining free information, will no longer be able to do so. It is difficult to say if how this particular trait will make e-books, with all its attached strings, more endearing to users in a democratic society. However, it is possible that marketability will not suffer if these same users are not informed of the potential impacts of e-technology on their decision making mechanism.

#### *2.10. A Final Warning: Hold on to "Reality"*

Any new major technological breakthrough affects the social structure of society. Gutenberg's printing press paved the way to Enlightenment, the French Revolution, the "Communist Manifesto" and "Mein Kampf". Good and bad are just relative sides of the same technological coin.

The Internet has already changed the way its users perceive the world and their interaction with it. A number of writers expressed fears that the current events in the field of electronic publishing, coupled with an explosion in the audio and video technology, will create a world of virtual reality, divorcing us for ever from the Real World. Doug LeNatt, former professor at Stanford University and an expert in Artificial Intelligence, criticised this increasing ability of technology to create a virtual reality. He stated that they increased juvenility, and over a few generations will render us incapable of doing things for ourselves (Seybold, 1998). Xerox's "famous" Reading Eye Dog is an example.

### 3. Future Predictions for the Market

*At the outer edge still stand the techno-visionaries, declaiming prophecies that are one part heroic forecast and three parts science fiction. These true believers argue that the information-technology revolution goes not just wide but unfathomably deep - that thanks to IT, nothing humans do will ever be the same.(...) Abolishing the sad old laws of economics was but an afternoon's work for the new paradigm.*

The Economist

#### 3.1. Potential Users

As has been mentioned before, producers of dedicated e-reader are not at the moment targeting the mainstream market. As for content owners and publishers, the report found that these aim at particular, up-end, sector of the market. However, literature search produced some interesting indications of who could benefit from using electronic books.

- *academics who feel stalled in their research by inordinate review periods*

The usual waiting period for a peer-review in the academic publishing business is almost 2 years. In our fast moving world, this may render many discoveries obsolete before they even reach the public. Scholarly journals online are becoming popular with a promise of peer-reviewed publication in as little as eight weeks (Maclay, 2001). Scholars would also benefit from electronic libraries when writing dissertation, as searching for material, referencing and bibliographies would be much easier to create (Chizuku, 1999). Being able to review a book on an article online assists in making the decision whether or not to obtain the hard copy. In a recent poll, 63% of academics stated they already used some form of electronic publication (Rose, 2000). However, a different opinion emerges from other academic libraries, which say that although scholars are thrilled by the easy access, they are not as yet prepared to read digital books, and prefer a print copy (Mayfield, 2000).

- *professionals using materials that need continual updating.*

Manufacturers aimed for the e-readers to appeal mainly to professional customers who spend a thousand or more tax-deductible dollars on reference works a year: doctors, lawyers, IT engineers, etc. and who need instant access to professional texts (Lewis, 1998). The devices are also targeted toward large companies providing technical manuals that need regular updates. However, for the professional, a dedicated e-book reader is another piece of gear to carry. Hogan (1999) argues that e-readers would compete better if it was multifunctional rather than dedicated. Ward et al. (1999) tells of a Phoenix-based newspaper, Arizona Republic, who has issued all of its 1700 carriers with SoftBooks so that they could update their subscriber lists daily. This shows that human ingenuity will find other uses even for a dedicated device.

- *business and leisure travellers who carry their reading material with them on their journeys*

Travellers could create their own travelling guides, selecting only those parts which pertain to their destination (Dorschner, 2000). Because of the convenience, British Airways has already invested in Rocket eBooks for their long-distance flights (Schmeltzer, 1999). Business travellers could store large amounts of text into their e-readers, while leisure travellers could also store such aids as phrasebooks, dictionaries, maps and street directories, not to mention light reading.

- *physically challenged persons*

This is a potentially large market, although a lot has to be fine-tuned before electronic texts are suitable for ALL disabled people. However, educators are already seeing the benefits (Treviranus and Weiss, 1999; also Texas Education Agency, 1999). Main issues that need addressing, though, are formats and copyright laws. The latter is seen as infringing upon the rights of readers with disabilities by preventing multi-faceted access to material. Sottong (1999) has serious reservations about electronic devices actually being of assistance to visually impaired people, but his is the only opinion literature search could locate that was blatantly against electronic books.

- *artists keen at exploring new design media*

In a very interesting experiment by the French national Library, reported by Dersot (1999), the new possibilities of non-linear navigation of electronic text have been examined by one of France's plastic artists, Jean-Michel Othoniel. Multimedia has generated quite an interest in the graphics design area as

well. Since electronic books are a dynamic media, argues Lamson and Simons (1995) they have to be designed differently when it comes to typeface, structure and relationship with reader.

- *creative writers who fail to access print publishing industry.*

The growth of the Internet and the appearance of web-based publishers has made self-publishing respectable. After Stephen King's adventure on the Internet, many a writer who has failed in convincing an established publishing house will publish online. There are benefits to this: cutting out the middleman, increasing revenue if the book sells well, and total control over its copyrights. The book will not go "off-print" and will not be bound by the 4 months' selling season. The problems facing online writers would be getting promotion for their book, technical know-how and in general finding acceptance among the established reviewers (Thomas, 2000; also Mayfield, 2001)

- *Students*

Quite a number of content owners see in electronic text a solution to textbooks. Although display monitors are not as yet the preferable reading devices, the ability to store a large amount of material in a compact and lightweight device is tempting. Educators and students can use e-books to replace textbooks and maintain up to date information through regular editions, as well as develop curriculum specific to their needs. Not all educators are keen on technology, though, as can be deduced from Darnton (1999). Simon (2001) did a pilot study that pointed to a positive finding; however, the study had far too few subjects. However, the younger generation is always at the forefront of embracing new technologies, so it would seem to be worthwhile to cultivate this market sector.

### 3.2. *Publishers and Technocrats*

It has been found that predictions about the future of e-books and associated technology are often highly emotional, and tend to associate e-books either with science fiction-like future or a gloomy demise of the printed word. Very few of the predictions are objective, meaning based on statistical methods and market research.

This section will look at forecasts by publishing houses that have selected to join the electronic publishing venture, and technologists of various backgrounds, as it seems that these two sectors would benefit from objective economic forecasts. Financial consulting firms and market researchers are discussed in the following section.

As early as 1998, IT publications predicted that the advances in microprocessor, displays and memory capacity coupled with easier and cheaper Internet access and increasing costs of book production and distribution, will make a shift to electronic text inevitable (Lewis, 1998). This view is echoed by Bantam Publishers, who believe that the widespread acceptance of the Internet and abundance of handheld devices has prepared the market for e-readers (Silberman, 1998). At SoftBook, the underlying design idea was something that would make people want to pick the gadget and play with it. Xerox and NightKitchen proclaimed, on the other hand, that new devices needed new media and new genres, that is, they did not HAVE to look like books or even have the same functionality (Farmanfarmaian, 2001). Vinzant (1998) argued that e-books have been "part of the collective consumer unconscious for a long time", from StarTrek to Knight Ridder. A venerable figure in the publishing world, Jason Epstein, even predicted in his new book, "Book Business: Publishing, Past, Present and Future", that e-books will be printed and bound on demand from machines that look like current ATMs (Smith, 2001).

Microsoft is making predictions that by 2015 all new titles will be electronic, and that within 40 years all titles of the Library of Congress could be stored on a single, hand-held device. (Calabia, 2000)

On the publishing front, Penguin sees the sales of e-books as accounting for 10% of the market sale (Vinzant, 1998), predicting that in 10 years all best sellers will be published simultaneously in print and electronic formats (Herbert, 2000). Large publishing houses such as Simon and Shuster and Random House have gingerly began to invest money in e-titles (Ardito, 2000). Random predicts, though, that they will not be at first making any money out the venture (Herbert, 2000). Time Warner backed up Bibliobytes, an online venture that allowed people to download books for free, but not to print them. In 1998, the owners of

Bibliobytes were confident that they could sustain themselves on advertising, and that people would actually read online. Time Warner saw this as a way to train people to read electronic material. Unfortunately, Bibliobytes went out of business in less than a year (Milliot et al., 2000). Amazon.com, however, is taking a sceptical stance, saying that although e-books are inevitable, the hype is premature (Seybold, 2000)

### 3.3. *The Sober Men in Black*

A few consulting firms and market research companies have made their views on electronic publishing public, presumably as this is a new market trend and serious predictions are difficult. Among these bodies, Andersen Consulting predicts that by 2005, electronic books will make up only 10% of consumer book sales, basing this prediction on the assumption that people will prefer paper publications. 70% of these sales will be adding to, but not replacing, traditional sales (White, 2000; also Rippel, 2000).

Jupiter Media Matrix, an Internet Researcher, found that by October 2000, fewer than 50,000 e-reading devices were sold in the USA (Mariano, 2000). An Australian report (Bryden-Brown, 2001) stated that the USA market constitutes 85% of the total device sales (Australia only 6%), so the total number of sold devices would be around. Sales are predicted to reach only 1.9 million by 2005. Jupiter Matrix claims there is no consumer demand.

PricewaterhouseCoopers predicted that one in four books will be published electronically by 2004, but that laptops will be preferred over dedicated devices for reading business literature. Acting on such predictions, Dell is working on creating a laptop with a detachable screen that allows readers to read in portrait orientation. (O'Neill, 2000)

The GartnerGroup, Connecticut-based market research firm, puts widespread acceptance of electronic books off until 2003, predicting that over the next ten to twenty years many books and magazines will go into electronic format (Hogan, 1999).

Wilson (1997) in a slightly outdated but still highly relevant paper, argues that since change in the electronic publishing industry is discontinuous, and too new to depend on trend lines, it is impossible to make any linear projections of the current situation. At present, the new media does not appear to be on the verge of replacing print media. There is always the possibility that the devices and the media they carry will become obsolete even before really taking off, and something radically new will emerge.

## 4. Conclusion

### 4.1. *Pros and Cons of E-Books*

A set of characteristics of electronic books are likely to be of great benefit to the future dissemination of information. However, much is still to be desired of this technology before it can start competing seriously with the older, much superior and strongly established print medium. Below is a brief description of both the pros and cons of electronic publications:

#### PROS:

- ◆ e-publishing allows for quick and cheap production and distribution of information
- ◆ e-text are easily to correct and update
- ◆ e-publishing allows for the disappearance of geographical boundaries
- ◆ e-publishing allows for greater variety of materials, as it is not tied to mass selling of content
- ◆ e-publishing allows the production of cheaply created customer-tailored texts
- ◆ e-readers allow larger amount of data to be stored relatively cheaply in a light, compact device
- ◆ e-readers allow the use of value-added multimedia to the text
- ◆ e-reading software allows for faster and more effective searching and referencing of the text, creation of text and retrieval of information
- ◆ e-books are a dynamic medium that allows for collaboration and communication between writers and readers

## A Review of Current Issues Affecting the Future Marketability of Electronic Books

- ◆ electronically published materials allow for the purchase of parts when the whole is not needed
- ◆ electronic publishing is alleged to solve the problem of deforestation
- ◆ text does not go “out-of-print” in its electronic version, as long as it resides on some retrievable storage medium
- ◆ electronic software promotes self-directed learning, and distance education
- ◆ electronic software permits access to physically challenged people

### CONS:

- ◆ e-readers, like any other IT device, need technical support, periodic updates and repairs
- ◆ e-readers are energy consuming devices
- ◆ e-readers are not biodegradable
- ◆ e-readers are costly devices, and additional costs are incurred through content price and telecommunication charges
- ◆ e-readers are in danger of becoming obsolete as new technologies arrive
- ◆ e-readers don't allow for comparing of two texts simultaneously
- ◆ display technology does not have the high resolution necessary to make reading an enjoyable experience
- ◆ storage media are lacking permanence and stability, resulting in potentially irretrievable loss of text
- ◆ access to electronic text depends on the possession of suitable technology, which the majority of humanity cannot at present afford. It creates inequity in information access.
- ◆ access to electronic texts is swamped in copyright restrictions that threaten to breach our basic democratic rights

## 4.2. What's To Be Done?

As can be perceived from the above list, e-books seem to have a chance at success if a number of issues are addressed by all involved sectors: the publishers, the hardware manufacturers, the legal sector and the writers (Swope, 1998). The report has found that discussing the future of e-book on the basis of its 'competition' with printed materials is unwarranted, because the two media can successfully exist together, each fulfilling different needs and serving different market niches. For people to want to access electronic texts, they have to be usable. If the time and energy it takes to do so outweigh the time taken to access print format, then obviously users will not want to do so.

To succeed, electronic books must be widely accessible by all segments of the population. Educational institutions should play a large role in improving society's technological literacy, while ensuring that the content remains strong and valuable. Manufacturers and content owners should put the general benefit of the society above their profit making schemes, and assist in making their products available to the public domain (Ohler, 2001). More research into the design and the social effects of electronic books is necessary.

It can therefore be concluded that, as difficult as it is to make any kind of long term predictions in the technological market, electronic books will for the time being remain a rather expensive and fragile gadgets, still very inferior to printed material, but with a high potential of changing into something useful. They will not, regardless to the optimism shown by the hardware and software manufacturers, displace the printed medium, except if a cataclysmic catastrophe wipes all forests from the surface of the earth. The author suspects that in that event, hemp may actually become a highly valued rotation crop.

## 6. APPENDIX 2: Crunching the dollars

Hardware	Brand name	E-reader	Internet connection	Computer	Software	Total
Specialized hand-held readers	SoftBook Reader	\$599	\$0 - \$300	Not required	Free	> <b>\$599</b>
	<a href="#">Rocket eBook</a>	\$199	\$0 - \$300	> \$700	Free	> <b>\$899</b>
	<a href="#">Everybook</a>	\$1,600?	?	?	Free	> <b>\$1,600</b>
Other hand-held devices	<a href="#">Palm Pilots</a>	\$149-\$499	\$0 - \$300	> \$700	Free	> <b>\$849</b>
	<a href="#">Sharp Electronic Organizers</a>	\$100-\$150	\$0 - \$300	> \$700	Free	> <b>\$800</b>
	<a href="#">Hewlett-Packard</a>	\$499	\$0 - \$300	> \$700	Free	> <b>\$1199</b>
	<a href="#">Compaq</a>	\$499-\$599	\$0 - \$300	> \$700	Free	> <b>\$1199</b>
	<a href="#">Casio</a>	\$599	\$0 - \$300	> \$700	Free	> <b>\$1299</b>
	<a href="#">Franklin</a>	\$130-\$230	\$0 - \$300	> \$700	Free	> <b>\$830</b>
	<a href="#">WebPAD</a>	?	\$0 - \$300	>\$700	Free	> <b>\$700</b>
On computers	<a href="#">netLibrary</a>	None	\$0 - \$300	> \$700	Free	> <b>\$700</b>
	<a href="#">Glassbook</a>	None	\$0 - \$300	> \$700	Free	> <b>\$700</b>
	<a href="#">Microsoft Reader</a>	None	\$0 - \$300	> \$700	Free	> <b>\$700</b>

Table 1. Costs of E-Books - adapted from Rippel (2000), Can E-Books Improve Libraries?

## 4. REFERENCES

"Accessibility of information in electronic textbooks for all students" (1999). Texas Education Agency. [Online]. Available WWW: <http://www.tsbvi.edu/textbooks/tea1999.htm> (accessed 18.03.2001)

Ardito, Stephanie. (2000). "Electronic Books: To 'E' or not to 'E'; that is the question" [Online]. Available WWW: <http://www.infoday.com/searcher/apr00/ardito.htm> (accessed 17.03.2001)

"Are Electronic Books the Paperbacks of the Future?" . (1999). [Online]. Available WWW: <http://www.honco.net/archive/990702.html> (accessed 17.03.2001)

Armstrong, C. J. & Lonsdale, Ray, (1998). **The Publishing of Electronic Scholarly Monographs and Textbooks**, Bath: UKOLN. [Online]. Available WWW: <http://www.ukoln.ac.uk/dlis/models/studies/elec-pub/elec-pub.htm> (accessed 16.03.2001)

Austen, Ian. (2000). "The Case of the Flickering Pixels" [Online]. Available WWW: <http://www.nytimes.com/library/tech/00/02/circuits/articles/03read.html> (accessed 17.03.2001)

Brown, Eryn. (2001). "Who's Afraid of E-Books?" . **Fortune** 143(3): 159

A Review of Current Issues Affecting the Future Marketability of Electronic Books

Brunnelle, James M. (2000). "The E-Book: Future or Fad?", [Online]. Available: <http://library.msstate.edu/mla/mlarchive/spring2000/ebook.html> (accessed on 16.03.2001)

Bryden-Brown, Sarah. (2001). "E-books threaten paperbacks". [Online]. Available: <http://australianit.news.com.au/common/storyPage/0,3811,1734490%5E3662,00.html> (accessed 18.03.2001)

Budd, J. & Harloe, B. (1994). "Collection development and scholarly communications in the era of electronic access". **Journal of Academic Librarianship** 20(5): 83-87.

Calabia, Daniel. (2000). "Publishers debate technology's role in their future". [Online]. Available WWW: <http://www.cnn.com/2000/TECH/computing/05/04/publish.tech.idg/> (accessed 18.03.2001)

Canoy, M. (ed.) (2000). **Publishers Caught in the Web?**, The Hague: CPB. [Online]. Available WWW: [http://www.cpb.nl/eng/pub/pubs/werkdoc\\_119](http://www.cpb.nl/eng/pub/pubs/werkdoc_119) (accessed 16.03.2001)

Chartier, Roger (1998). "The Transformation of Written Culture". [Online]. Available WWW: <http://www.honco.net/archive/rt-1.html> (accessed 17.03.2001)

Chizuko, Ueno. (1999). "Will a New Type of Literacy End the Wasting of Paper" [Online]. Available WWW: <http://www.honco.net/archive/rt-3.html> (accessed 17.03.2001)

Darnton, Robert. (1999). "A Historian of Books, Lost and Found in Cyberspace". [Online]. Available WWW: <http://www-sul.stanford.edu/siliconbase/darnton.html> (accessed 18.03.2001)

"Data Formats (Developing Standards for Electronic Books)". (1999). **The Seybold Report on Internet Publishing** 3(5)

Dorschner, John. "Future of Electronic Books Remains Uncertain" **Miami Herald**, Miami. 18 September 2000.

Dritsas, David. "Oh where, oh where has the e-book gone?" . **Dealerscope** 42(7): 32.

E-Book Applications Highlight Book Expo. (2000). Seybold Report. [Online]. Available WWW: <http://www.seyboldreports.com/News/2000/20000607.html> (accessed 18.03.2001)

Farmanfarmaian, Roxane. (2001). "Beyond E-Books: Glimpses of the Future". **Publishers Weekly** 248(1): 56

Gibbs, Mark. (2000). "eBooks are not just for reading". [Online]. Available WWW: <http://www.cnn.com/2000/TECH/computing/03/06/ebook.perks.idg/> (accessed on 16.04.2001)

Gillmor, Dan, "Electronic books open new chapter" in **San Jose Mercury News**, San Jose. 12 June, 1998.

Guernsey, Lisa. (1998). "Exploring the future of electronic books and journals" . **The Chronicle of Higher Education** 44(41): A27

Hacene, D. et al. (1999). **The Future Digital Library : Building Electronic Information Gateways**. University of New South Wells, Sydney. [Online]. Available WWW: <http://www.library.unsw.edu.au/~libadmin/futuredigital.htm>

Herbert, Susannah. (2000). "E-books: a revolution in reading". [Online]. Available WWW: <http://www.smh.com.au/news/0008/23/features/features1.html> (accessed 18.03.2001)

Hogan, Hank, (1999). **Curling Up with a Good E-Book**. [Online]. Available WWW: <http://www.hightechcareers.com/doc799/ebook799.html> (accessed 16.04.2001)

A Review of Current Issues Affecting the Future Marketability of Electronic Books

- Johnson, Dennis Loy. (2000). "E-books create a barrier to reading" **Times Union** 14(120): BOOKS
- Kang, Leslie. (2000). "MindSurf Beams Content into Schools" [Online]. Available WWW: [http://www.publishersweekly.com/articles/20001106\\_92630.asp](http://www.publishersweekly.com/articles/20001106_92630.asp) (accessed 17.03.2001)
- Kovacs, Diane K. (1999). "Electronic publishing in libraries: introduction" [Online]. Available WWW: <http://www.emerald-library.com/brev/23817aa1.htm> (password needed – access 18.03.2001)
- Lamson, Matthew; Simons, Williamson. (1995). **[X] Marks the Spot**. [Online]. Available WWW: [http://www.brodynemedia.com/e\\_books/simons/default.html](http://www.brodynemedia.com/e_books/simons/default.html) (accessed 18.03.2001)
- Lardner, James. (1999). "A high-tech page turner" [Online]. Available WWW: <http://www.usnews.com/usnews/issue/990906/rocket.htm> (accessed 17.03.2001)
- Lewis, Peter H. (1998). "Taking on New Forms, Electronic Books Turn a Page" [Online]. Available WWW: <http://www.nytimes.com/library/tech/98/07/circuits/articles/02book.html> (accessed on 17.04.2001)
- Maclay, Kathleen. (2001). **UC Berkeley students, faculty experimenting with e-books through new library project**; [Online]. Available WWW: [http://www.berkeley.edu/news/media/releases/2001/02/12\\_ebook.html](http://www.berkeley.edu/news/media/releases/2001/02/12_ebook.html) (accessed 18.03.2001)
- Maney, Kevin (1999). "High-tech tablets: Next step for newspapers?" [Online]. Available WWW: <http://www.usatoday.com/life/cyber/tech/cta611.htm> (accessed 17.03.2001)
- Mariano, Gwendolyn. (2000). "**Copyright fears make publishers wary of e-books**". [Online]. Available: <http://news.cnet.com/news/0-1005-200-2940803.html?tag=prntfr> (accessed 18.03.2001)
- Mayfield, Kendra.(2001) "What if E-Books Cost Less?" [Online]. Available WWW: <http://www.wired.com/news/culture/0,1284,41633,00.html> (accessed 18.03.2001)
- Mayfield, Kendra.(2000) "Who Can Dig Digital Books?" [Online]. Available WWW: <http://www.wired.com/news/technology/0,1282,35920,00.html> (accessed 18.03.2001)
- "Microsoft Shows Off E-book Improvement" . (1998). [Online]. Available WWW: <http://www.csref.org/news/111698-cleartype.asp> (accessed 16.04.2001)
- Milliot, Jim. (2000) "Decision Supports Web Copyrights". [Online]. Available WWW: [http://www.publishersweekly.com/articles/20001106\\_92630.asp](http://www.publishersweekly.com/articles/20001106_92630.asp) (accessed 17.03.2001)
- Milliot, Jim; Reid, Calvin; Zeitchik, Steven M. (2000) "E-Publishing: Tomorrow's Publishers Today". [Online]. Available WWW: [http://www.publishersweekly.com/articles/20000313\\_85249.asp](http://www.publishersweekly.com/articles/20000313_85249.asp) (accessed 18.03.2001)
- Negroponete, Nicholas and Jacobson, Joe. (1997). "Surfaces and Displays" . [Online]. Available WWW: [http://www.wired.com/wired/archive/5.01/negroponete\\_pr.html](http://www.wired.com/wired/archive/5.01/negroponete_pr.html) (accessed 17.03.2001)
- Ohler, Jason. (2001). "Taming the Technological Beast: The Case of the E-Book". **The Futurist** 35(1): 16
- O'Neill, Sean. (2000) "E-books: the new chapter" . [Online]. Available WWW: <http://www.flakmag.com/features/ebooks.html> (accessed 18.03.2001)
- Quan, Margaret. (1999). "E-book standards process faces rough road". [Online]. Available WWW: <http://www.eetimes.com/story/OEG19990122S0008> (accessed on 17.03.2001)
- Rowlinson, Carolyn. (2000). "Supporting learning through on-demand and electronic reserve services". [Online]. Available WWW: <http://www.emerald-library.com/brev/17119bb1.htm> (password needed –

A Review of Current Issues Affecting the Future Marketability of Electronic Books

accessed 18.03.2001)

Reardon, Patrick T. (2000). "Uneasy over e-books" . [Online]. Available: <http://chicagotribune.com/tech/specialreport/article/0,2669,ART-45318,FF.html> (accessed 17.03.2001)

Rheingold, Howard. (1999) "Digital Paper, Digital Books and the Future of Reading" [Online]. Available WWW: <http://www.honco.net/archive/rt-3.html> (accessed 17.03.2001)

Rich, Lloyd L. (1997) Who Controls Electronic Rights - The Publisher or the Writer? [Online]. Available WWW: <http://www.writersblock.ca/winter98/a-featur.htm> (accessed 17.03.2001)

Rippel, Chris. (2000). "Can E-books Improve Libraries? Concerns and Comments." [Online]. Available: <http://skyways.lib.ks.us/central/ebooks/technology.html> (accessed 17.03.2001)

Rose, M.J. (2000). "E-Books for Writers, Not Readers" [Online]. Available WWW: <http://www.wired.com/news/culture/0,1284,35722,00.html> (accessed 18.03.2001)

Shah, Rawn. (1999). "(En)lighten your briefcase with an eBook" [Online]. Available: <http://sunworld.com/sunworldonline/swol-12-1999/swol-12-connectivity.html> (accessed 17.03.2001)

Shapiro, C. & H.R. Varian. (1999). Information Rules; A strategic guide to the network economy. Boston (MA): Harvard Business School Press.

Silberman, Steve. (1998). "The joys of curling up with a good digital reading device". [Online]. Available WWW: [http://www.wired.com/wired/6.07/es\\_ebooks.html](http://www.wired.com/wired/6.07/es_ebooks.html) (accessed on 16.03.2001)

Simon, E.J. (2001). "Electronic textbooks: pilot study of student e-reading habits". [Online]. Available WWW: <http://www.futureprint.kent.edu/articles/simon01.htm>

Schmeltzer, John. (1999). "Will e-book fly?". [Online]. Available WWW <http://www.bergen.com/biz/ebooks199909064.htm> (accessed 18.03.2001)

Smith, Dinitia. (2001). "A Vision for Books That Exults in Happenstance". [Online]. Available WWW: <http://www.nytimes.com/2001/01/13/technology/13EPST.html> (accessed 18.03.2001)

Sottong, Stephen. (1999). "Don't power up that E-book just yet". **American Libraries** 30(5): 50-53

Swope, Brett. (1998). The Future of the Written Word. [Online]. Available WWW: <http://horizon.unc.edu/TS/default.asp?show=article&id=13> (accessed on 18.03.2001)

Terry, Ana Arias. (1999). "Demystifying the e-Book --What is it, where will it lead us, and who's in the game?". [Online]. Available: <http://bibliofuture.homepage.com/demyst.htm> (accessed on 16.03.2001)

Tennant, Roy. (2000). "The Emerging Role of E-Books". [Online]. Available WWW: [http://www.libraryjournal.com/articles/infotech/digitallibraries/20000801\\_15318.asp](http://www.libraryjournal.com/articles/infotech/digitallibraries/20000801_15318.asp) (accessed 17.03.2001)

Tetsuo, Kogawa. (1998) "The Global Transformation of Books and Reading." [Online]. Available WWW: <http://www.honco.net/archive/980801.html> (accessed 17.03.2001)

"Text Is Meaningless If You Can't Read It" . (1998). [Online]. Available WWW: <http://www.honco.net/archive/980808.html> (accessed 17.03.2001)

"The Future of Publishing" (1998). Seybold Publishing Systems Conference, San Francisco. [Online]. Available WWW: [http://www.seyboldseminars.com/Events/sf98/transcripts/ETAPE\\_41.html](http://www.seyboldseminars.com/Events/sf98/transcripts/ETAPE_41.html) (accessed 17.03.2001)

A Review of Current Issues Affecting the Future Marketability of Electronic Books

Thompson, Ross. (1999). "E-paper Heads to Market" [Online]. Available WWW: <http://www.consciouschoice.com/environs/epaper1212.html> (accessed 17.03.2001)

Thomas, Nicholas. (2000). "Why Publish E-Books?" . [Online]. Available WWW: [http://www.ebooksnbytes.com/why\\_publish.html](http://www.ebooksnbytes.com/why_publish.html) (accessed 18.03.2001)

Treviranus, Jutta, Weiss, Tamar (1999). **Electronic books for readers with disabilities: universal accessibility**; [Online]. Available WWW: <http://www.fxpai.xerox.com/ConferencesWorkshops/chi99deb/submissions/weiss.html> (accessed 18.03.2001)

Vinzant, Carol. (1998). "Electronic Books Are Coming At Last". **FORTUNE** 138(1): 119-24;

Ward, Andrew et al. (1999). **Introduction to Digital Intellectual Property Issues**. [Online]. Available: <http://525.fims.uwo.ca/~ghpon/520project/ebooks.html> (accessed 18.03.2001)

White, Erin. (2000) "Will e-books fall into music's piracy trap?". [Online]. Available WWW: <http://www.zdnet.com/zdnn/stories/news/0,4586,2591536,00.html> (accessed 17.03.2001)

Wilson, Tim. (1997). Electronic Publishing and the Future of the book. [Online]. Available WWW: <http://www.shef.ac.uk/uni/academic/I-M/is/publications/infres/paper39.html> (accessed 18.03.2001)

Zhiming, Liu (1999) "How Electronic Media Can Reduce Paper Consumption" [Online]. Available WWW <http://www.honco.net/archive/rt-3.html> (accessed 17.03.2001)