

# The Changing World of E-books

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## Abstract

*The whole chain of e-book publishing is changing as the distinction between author, publisher, reader or user and library are being hazy. In this context there are many issues that need to be addressed, developments that are admirable and emerging trends that need to be understood. These include tracing the development from print to e-book; various publishing models for e-books; various distribution models for e-books, emerging and genuine document formats and file formats used in e-book; new file sharing technologies; authoring and reading e-book; policies and legislation; fighting with piracy and concept of fair use; e-book business models; growth and impact of the e-book market in both developed and developing countries and the latest e-book trends and future technologies. In addition to this changed context, librarians are facing several other challenges in providing information, which are discussed in this paper.*

**Keywords:** e-Content, ICT, Digital Rights Management

## 1. Introduction

At this modern era of technology, digitalization of the written language finally reached in the book publishing industry. E-book publishing is initially mainly text based stand-alone publishing. Now it is fast transforming into a resource of interactive characteristics with rich multimedia that can be packaged in many ways and disseminated in various forms across different networked environments.. These include reduction in budget; limited space with no additional fund for new space/ building; increasing costs to repair or replace damaged, lost and stolen books, some of which are out of print; users' demand for electronic resources; rising costs of interlibrary loan services; increased need for developing resource-sharing and purchasing groups to better buying power and the claim to carry distance or distributed learning and other isolated

user needs. To face these challenges libraries are now moving from a warehouse perception to an information gateway or portal.

## 2. Emergence of E-Books

Initially, e-books were in stand alone format, distributed through storage media such as diskettes and CD-ROM. Later e-books became multi-dimensional when multimedia technologies enabled sounds, moving images to be incorporated. With advanced networking technology e-books are being used to refer through information content distributed over network environments such as Internet. E-books may therefore be categorized broadly into offline and online mode. Offline publishing utilizes different types of storage and delivery media such as CD-ROM, CD-I, DVD, memory card and diskettes, while online types uses communication networks such as the Internet, Intranets and Extranets as the delivery mode. Electronic & networked information creation & dissemination has created new opportunities for the distribution of the e-books.



With the advent of www and its transformation into a graphical medium, new possibilities for e-book were created.

E-books are part of the new frontier of cyberspace. They are an entirely new medium for sharing information, ideas, techniques and expert knowledge. The e-book refers to the digital media equivalent of a conventional printed book. Such documents are usually read on personal computers, or on dedicated hardware devices known as e-book readers or e-book devices. An e-book is based both on emulating the basic characteristics of traditional books in an electronic format, as well as leveraging internet technology to make an e-book easy and efficient to use. An e-book can take the form of a single monograph or/a multivolume set of books in digital format. It should allow searching for specific information across a collection of books and within a book. An e-book should utilize the benefits of the internet by providing the ability to insert multimedia data to link to other e-resources and cross reference information. Today, electronic full-text copies of published print materials such as reference books, scholarly monographs, fiction & non-fiction books, searchable across the full collection of the publisher.

### **3. Production of E-Books**

E-books offer the potential of enhancing information with additional dimensions in a cost effective way and thus enabling the information to reach a wider audience of users compared to book. E-book offers some advantages to publishers, readers/users and libraries. Publishers can be benefited by decrease in publication cost, increase the amount of information that can be included in a publication and implement new approach to the organization and presentation of information with no barriers in

terms of Publishing. Users/ readers are given the opportunity and ability to easily obtain, interact, customize and create individual pathways & information layers, include simulation and experiments and to visualize the impact of full color figures and video. Libraries can fruitfully use e-books because of its easy access to content, on-demand availability, prevention from being lost/ stolen/ damaged, capability to search within a book and across a collection of books, ability to be linked to other resources, absence of physical space requirements, easy transportation and access from anywhere. The emergence of the e-book has given publishers new ways to serve customers by repurposing content and creating living books, which incorporate text, audio, video and other resources such as dictionaries, thesauri etc.

### **3.1 Publishing Models of e-books**

E-books are electronic version of books that are delivered to consumers in digital formats. The potential market for e-books is large; widespread acceptance and usage is expected with the ability to download rich multimedia content e-books directly from the Internet. E-book is a broad term that includes a variety of different publishing models, including digitalized book, airplane book, the pamphlet or brochure and manifesto or report. These models are different with each of them having its own set of distinguishing characteristics, features and functions.

#### **3.1.1 The Digitalized Book**

This form is commonly seen in the digitalization of fiction and literary works and often freely downloadable if their age or copyrights have taken them into the public domain. Various formats are being developed for new authors seeking ways to

publish outside of the larger publishers and corporate. Such digitalized books normally can be recognized by their length (over 100 pages) and they are normally found with headed chapters and more than one idea contained.

### **3.1.2 The Airplane Book**

This model is providing concise packaged information in a format which is easily accessible on an airplane journey across country or continents. The airplane book normally follows standard formatting of larger e-books, containing sections, chapters, a table of contents and normally created in A4 size. They are generally medium size (100-200 pages) books.

### **3.1.3 The Pamphlet or Brochure**

The brochure is the type of e-book format which many internet marketers suggest are the best-sellers. These are the one or two page quick documents, either in bullet-point format which are produced to resolve 'one problem' quickly for a desperate buyer. The most popular formats are either lists or tips/cheat sheets or best of type documents. The information provided is only deep enough to provide a resolution which can be downloaded instantly and on demand.

### **3.1.4 The Manifesto or Report**

The manifesto is larger than the Brochure and can range up to about 25-30 pages, thus allowing more text than a Brochure. "Change This" is a site which provides free-to-download manifestos. The format allows for more descriptive text, sub-headings, a mixture of bullet-points and opinions. It covers only one idea. Manifestos are often called Reports and have been made more famous in terms of their pricing.

## **3.2 Distribution Models of e-books**

The concept of e-book embodies a variety of different distribution models, including Internet bookshops, digital publishing on print-on-demand basis (POD), direct-publishing on the web and wireless Internet publishing in wireless/ mobile hand held devices.

### **3.2.1 Internet Bookshops**

Internet bookshops such as Amazon.com and firstandsecond.com can offer up to 40% discounts off the price of a book to customers due to having distribution costs which are lower than a conventional book chain, though the costs such as postal charges and overhead costs still exist.

### **3.2.2 Print-on-demand (POD)**

These kinds of publications are hybrid and reside in cyber space until they are printed on special digital printing machines. This kind of production can be done on a fully automated vending machine shortly after an order is placed on the Internet. The POD Model is especially useful for publications for the small market such as non-commercial and academic publishing. As papers are used in this method, it cannot be delivered as cheaply and quickly as e-books.

### **3.2.3 Direct Publishing on the Web**

Web programming languages such as HTML and XML are widely used by the publishers to create content and data that is portable to other devices for reading. Developments such as Britannica's system of content distribution on a subscription model are making publishing more similar to television broadcasting than to traditional publishing (Vitiello, 2001).

### 3.2.4 Wireless Publishing

Wireless Internet publishing opens a new avenue for the distribution of time-sensitive and compact content. This form of publishing relies on the widespread availability and continuing growth of mobile phones, and other wireless devices. It focuses on the provision of information content and value-added services in demand by wireless users.

The decision about which format to adopt is closely related to the issue of access to content authoring and reading. Access to content and software development tools is important for the growth of e-publishing and e-books as this allows traditional publishers, e-publishers and self-publishers to generate and sell content. Some companies choose to make the authoring tools freely available to encourage adoption and usage of corresponding reading devices or file formats while others choose not to support the easy creation of content due to piracy concerns and business models that focus on selling content to readers. Some e-books are produced simultaneously with the production of a printed format. Often, e-books are produced from pre-existing hard-copy books, generally by document scanning, sometimes with the use of robotic book scanners, having the technology to quickly scan books without damaging the original print edition.

#### 4. Formats of E-Books

There are a number of proprietary and open standard document formats currently being used for e-book. Each of these has a different approach to document layout and document context. Document layout refers to original design of a document that gives a publication a distinctive look and feel, while

document context refers to the actual information contained in the document.

**4.1 Plan Text Files :** E-books in plain text published as *.txt* and are very small in size.

**4.2 Hypertext Markup Language :** Published as *.htm* or *.html* and used for most web pages.

**4.3 Amazon Kindle (AZW) Format :** Published as *.azw* and created by amazon.com. It is based on Mobipocket standard.

**4.4 Open Electronic Book Package Format :** Published as *.opf* and is based on XML.

**4.5 Tombe Raider :** Published as *.tr2* or *.tr3*. It has versions for windows, mobile, palm, symbian and more.

**4.6 Arghos Diffusion:** Published as *.arg* and it is XML based proprietary format.

**4.7 Flip Books:** A 'Flip Book' is a type of E-book distinguished by virtual pages that actually 'flip', much like turning pages of paper in a real book. It was developed by Interactive Media for Nishe Media (Canada).

**4.8 NISO Z39.86 Format:** Commonly known as DAISY and XML based e-book format created by the DAISY International Consortium of Libraries for people with print disabilities.

**4.9 Fiction Book:** Published as *.fb2* and it is an XML based e-book format, support by free readers such as Haali Reader and FB Reader.

**4.10 Text Encoding Initiative:** TEI Lite is the most popular of the TEI-based electronic text formats.

**4.11 Plucker:** It is a free e-book reader application with its own associated file format and software automatically generate plucker files from HTML files.

**4.12 CHM:** Published as *.chm*. It is also known as Microsoft Compressed HTML help.

**4.13 Portable Document Format:** Published as *.pdf* and created by Adobe Systems, initially to provide a standard form for storing and editing printed publishable documents. Acrobat reader software is required to open and read the *.pdf* document.

**4.14 Post Script:** Published as *.ps* and is a page description language used in the electronic and desktop publishing areas for describing the contents of a printed page in a higher level than the actual output bitmap.

**4.15 DjVu:** Published as *.djvu*. It is a format that specializes in and particularly excels at storing scanned images. It includes advanced compressors optimized for low color images, such as text documents.

**4.16 Microsoft LIT:** Published as *.lit*. It is only readable in the proprietary Microsoft-Reader program. It is also working as a converter tool.

**4.17 eReader:** Published as *.pdb* and is a freeware program for viewing Palm Digital Media electronic books. Versions are available for PalmOS, iPhone, Symbian, Windows Mobile Pocket PC/ Smartphone, desktop windows and Macintosh. The eReader shows text one page at a time.

**4.18 Desktop Author:** Published as *.exe*. Desktop Author is an electronic publishing suite that allows creation of digital web books with virtual turning pages.

**4.19 DNL Reader:** Published as *.dnl* and this format replicates the real life alternative and is developed by an Australian Company established in 1999. It can be produced using Desktop Author.

**4.20 Newton eBook:** Published as *.pkg* and commonly known as an Apple Newton book; a single Newton package file can contain multiple books.

**4.21 APABI:** Published as *.xeb* or *.ceb* and is devised by founder Electronics. It is popular format for Chinese e-books.

**4.22 iPod Notes:** Notes is a feature of iPod that allows short text notes to be displayed on the iPod screen.

**4.23 Libris:** Published as *.lbr* or *.bin* and it is a java based e-book reader for mobile devices such as cell phones.

**4.24 Mobipocket:** Published as *.pre* or *.mobi* and it is based on the Open-eBook standard using XHTML and can include JavaScript and frames.

**4.25 IDPF:** Published as *.epub*. It is also called OEBPS format. It is an open standard for e-books created by the International Digital Publishing Forum (IDPF).

**4.26 Reader:** Published as *.pdg*. This digital e-book format used by a popular digital library company in China.

## 5. Business Models for E-book:

With the development of e-commerce, e-book vendors follow various business models. Some of these are as follows:

**5.1 NetLibrary:** NetLibrary is selling e-books covering a broad range of disciplines. They offer a business model based on the list price of a book plus service fees. They are providing subscription to copies of individual titles with access of single user per copy and a premium of “ownership”. The target buyers are libraries and academic institutions.

**5.2 Questia:** Questia is selling scholarly, high quality books and journal articles in the liberal arts. They are providing flat monthly subscription rate for access to the entire database. They are marketing their products only to individuals, not libraries and their target buyers are undergraduates, public library patrons and other individuals.

**5.3 Ebrary:** Ebrary is selling archive of resources for term papers including science, technology and medicine. They are also marketing bits of information or entire books and articles. They are providing free browsing of the entire database with fees for printing and downloading both to libraries and individuals. They are anticipating that libraries will establish accounts with a maximum amount to spend per user, identified by patron ID, where library to receive 5% revenue generated from the library's account. Their target buyers are library users of all sorts, including undergraduate and researchers. Both libraries and individuals are expected to open accounts with Ebrary for access to its service.

**5.4 Book 24x7:** Book 24x7 is selling technical e-books, journals and reference materials of information technology. They offer annual subscription model that is FTE based; allowing BCR to aggregate FTE for academic institutions for greater economies. Pay for any new content added to the service during the subscription year at renewal the following year. The target buyers are libraries, academic institutions and public libraries.

**5.5 iBooks.com:** iBooks.com is selling digital technical reference books in information technology and providing online digital book store for discounted print copies. They offer short and long term subscription to e-books; sales of printed

works. Marketed to libraries and academic institutions with direct selling to individuals, their target users are library patrons, corporate customers.

**5.6 Cognito:** Cognito is selling electronic version of major books and reference works in cognitive science from MIT press and other publishers with other relevant journals and cognitive science materials. It is a SPARC initiative with favorable pricing for academic institutions. They offers annual subscriptions to libraries. The target buyers are cognitive science community of students and scholars.

**5.7 ACLS History E-book Project:** The American Council of Learned Societies (ACLS) is a private non profit federation of 63 national scholarly organizations. They are providing access to the history e-books. They offer access by annual subscriptions for individuals. Their business model is based upon one-time purchase, perpetual access and basic principles for fair use.

**5.8 ITKnowledge:** ITKnowledge is selling e-books on information technology with an offer of annual subscription. The target users are libraries and academic institutions.

## 6. The Impact of E-Books In Libraries

The integration of e-books into the library has not only created opportunities for librarians, but also created several challenges. Full-text access and retrieval of e-books combine library based theories and principles with web search and retrieval techniques. Librarians must develop innovative policies, procedures and technologies to accommodate the publication of and access to e-books. With e-books, readers could have instant

and online access. Readers could also have instant updates and revisions and electronic contact with all the other readers of a book, thereby sharing ideas and reactions more rapidly and with more people. E-books also need not go out of print and might be cheaper and less bulky than paper books. Instead of several expansive books, thousands of books could be stored on one small and light memory device. E-books could contain electronic bookmarks and cross-referencing. They can have all the advantages of paper books such as handwritten annotation, highlighting with colored markers, underlining, post-it notes and book marks through software on small portable pen-based computers. E-books can be multimedia and thus aid the blind, visually impaired, illiterate or busy users. E-books could also be customized for their readers and need not to be an exact copy. E-books challenges for librarians can be grouped into the following three categories:

- a) Acquisition and collection development – include budget allocation usage and distribution models; purchase models and collection development strategies.
- b) Standards and technology – include catalogue and metadata standards and schemes, hardware and software technologies, DRM software and user and staff training.
- c) Access – including cataloguing and indexing of e-books, circulation models for the electronic environment, preservation, achieving of e-books and resources linked to them.

### **7. Latest and Future Trends in E-Books**

Recent developments in information and computing technology have enabled higher bandwidth to be

made available to support online multimedia applications. Wireless networking allows online access to information and content by mobile users on the move. Cheaper and higher capacity storage technology provides a means to contain large amounts of multimedia content. E-book is expected to create an environment where authors can circulate their works widely, producers can see their investments rewarded by high profits and distributors (information providers and librarians) can make cheap information widely available to all. This is evident by the number of eBook initiatives. There are eBook readers, which can be divided into the following categories: eBook hardware, Personal Digital Assistants (PDAs), and eBook software. There are also electronic ink and paper, print on demand, and online eBook providers. The major eBook hardware providers are Rocketbook, now known as REB 110, and Softbook, now known as REB 1200, which have become increasingly popular in public libraries. The most commonly used PDAs that allow for downloading eBook content are being introduced in the market by Palm Digital Media, Casio, Compaq, and Hewlett Packard. The major eBook software companies include Palm Digital Media, Adobe, Microsoft, and netLibrary. There are numerous online eBook providers. These include publishers, such as Gale, Bowker, O'Reilly (Safari), and UMI; libraries, such as the University of Virginia; and content providers, such as ED (Baker & Taylor), Books 24x7, netLibrary, Questia, and ebrary. National Academy Press reports that providing its titles free of charge on the Press' web site has increased print book sales. The Press views this free electronic offering as a successful marketing strategy. Today there are pre-made e-book covers are available in the Market (DataWorkZ.com), where an author can choose the design of the cover.

According to Marisa Peacock,

- ◆ 70% of publishing companies indicated that they felt ready for digital age, though many are skeptical that the digital age will adopt the e-reader and other related technologies over the printed word.
- ◆ Customers in US, followed by those in Japan and Europe are leading the sector in digitalization. The prediction is that in the next few years China will begin to edge the US out.
- ◆ Copyright, Digital Right Management, Standard for uniformity and retail price maintenance will be hot topic in this millennium.

It is estimated that the amount of e-books will exceed 1 million by 2012 and the revenue will reach over 2 billion from library and other organization's purchase and more than 30% mobile phone users will read e-books with their mobile phone (Founder Apabi Technology Limited, Hong Kong). Technological Trends may be categories as –

- a) Related Technology including typeset technology, Resin Impregnated Paper (RIP) and output technology, Font e-technology and workflow management technology.
- b) New Technology including Full-text search, data mining, and semantic web, complex search over different resources and content related technology, Web 2.0 technology, POD technology based on Digital Right Management and Reading technology over different platform and devices.

## 8. Summary

Developments in computing, telecommunications and networking technologies have brought e-book

to the current stage of online delivery to users. Much experimentation and progress had been made with this form of delivery. Although many e-book products are produced for display on PC or laptops, there is a move to produce e-book products for dedicated reading devices and mobile devices as this area is regarded as a potentially high growth market. However, before e-books can become as prevalent and accepted as printed one, copyright and technical issues need to be resolved in order to allow readers or users a reading experience as good as, or better than, printed book. Likewise, the convergence of formats and emergence of standards are essential to provide uniformity and to allow the constituents of publishers, authors and readers to adopt e-books on a wide scale. In this respect, the development of eInk and ePaper may be important in e-books' future.

## References

1. **Anderson, A.** High prices stifle e-book market. Available at [http://www.nua.ie/surveys/index.cgi?f=VS&art\\_id=905356459&rel=true](http://www.nua.ie/surveys/index.cgi?f=VS&art_id=905356459&rel=true) (Accessed on 21/11/2008)
2. **Anderson, B.** Open Access Journals. *Behavioral & Social Sciences Librarian*, 2004, 22 (2), p. 93-99.
3. **Association of American Publishers. Tidying ebookcase.** Available at <http://www.artsjournal.com/issues/epublishing.htm> (Accessed on 14/11/2008)
4. **Bar-Ilan, J., Peritz, B. C. & Wolman, Y.** A survey on the use of electronic databases and electronic journals accessed through the web by the academic staff of Israeli universities. The



- Journal of Academic Librarianship, 2003, 29 (6), pp. 346-361.
5. **Besek, June M.** Copyright: What Makes a Use 'Fair'? *EDUCAUSE Review*, 2003, 38 (6), pp. 12-13.
  6. **Carpenter, T. A., Joseph, H. & Waltha, M.** A survey of business trends at Bio-One Publishing partners and its implications for Bio-One. *Portal. Libraries and the Academy*, 2004, 4 (4), pp. 465-484.
  7. **Cave, D.** Copy wrong? *Salon Technology*. Available at [http://www.salon.com/tech/feature/2001/08/31/dmca\\_report/index.html](http://www.salon.com/tech/feature/2001/08/31/dmca_report/index.html) (Accessed on 22/11/2008)
  8. **Founder Apabi Technology Limited.** Digital Publishing and Trends. Available at [www.cityu.edu.hk/lib/ebook\\_conf/Replaced%20version%20from%20Scarlet%20He.ppt](http://www.cityu.edu.hk/lib/ebook_conf/Replaced%20version%20from%20Scarlet%20He.ppt) (Accessed on 15/11/2008)
  9. **Henry, G.** On-Line Publishing in the 21st Century: Challenges and Opportunities. *DLib Magazine*, 2003, 9 (10). Available at <http://www.dlib.org/dlib/october03/henry/10henry.html> (Accessed on 14/11/2008)
  10. **Ludwick, R. & Glazer, G.** Electronic publishing: The movement from print to digital publication. *Online Journal of Issues in Nursing*, 2000, 5 (5). Available at [http://www.nursingworld.org/ojin/topic11/tpc11\\_2.htm](http://www.nursingworld.org/ojin/topic11/tpc11_2.htm) (Accessed on 14/11/2008)
  11. **Miller, A.** Electronic publishing: Examining a new paradigm. Available at <http://www.ddg.com/LIS/CyberHornsS96/amiller/EP.html> (Accessed on 26/11/2008)
  12. **Peek, R.P.** Where is publishing going? A perspective on change. *Journal of the American Society for Information Science*, 1994, 45 (10), pp. 730-736.
  13. **Rao, S. S.** Electronic Book Technologies: An Overview of the Present Situation. *Library Review*, 2004, 53 (7), pp. 363-371.
  14. **Vitiello, G.** A European policy for electronic publishing. *Journal of Electronic Publishing*. Available at <http://www.press.umich.edu/jep/06-03/vitiello.html> (Accessed on 21/11/2008)

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