

TECHNOLOGY EDITOR

Don't let the e-book market surprise you

▶ **ANY SCREEN** can be used to read a book text, but networked e-book readers with innovative features are coming out in force and consumers are catching on. Although standards and copyrights are still big issues, this definitely opens up a new line of business for operators.

The current hype surrounding e-books and e-book readers, also called e-readers or e-book devices, is simply enormous. New e-readers are being created in rapid succession, large publishing houses are promising to release all titles in digital format, and it seems as if writers' unions and publishers are finally talking amiably with one another about e-book rights.

As a consequence, the sales of e-books have increased by 13 percent in the past six months. But even so, e-books make up just a small share of total books sold. Also, there are relatively few non-English titles. In Sweden, for instance, only about 2000 Swedish-language titles are currently available.

OUR FILM-VIEWING and music-listening habits have changed radically since 2000, thanks to iTunes, iPods, YouTube and Spotify. Why then, with the exception of universities and libraries which have been quick to utilize the potential of digital literature, has the success of e-books been so slow in coming?

One reason is that the market is still quite small, giving publishing houses little reason to focus on new e-books. And without content, of course, the market is unlikely to grow. At the same time, publishing houses are unsure of how to handle digital rights management (DRM) issues or how to calculate book royalties.

Publishing houses have been able to ignore the digital revolution longer than the music industry. Without technical solutions to entice readers, publishing houses have had no incentives to release e-books.

AND FINALLY, there is the matter of the target audience. Some say the real e-book revolution is still about five years away.

Why five years? Because that is when the digital generation – those born in the 1980s and later who learned to work an iPod while still in the cradle and who are used to reading text on displays – will have grown up and become a consumer group with its own purchasing power.

For network operators, this is a strategically interesting space to watch. Precisely because it is still early days, it is important to look out now for the right partnerships for those who want to play a role other than that of pure bit-providers. As the behemoths Amazon, Apple and Google have started to move, the new value chains and eco-systems will form rapidly. ●



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UNDERSTANDING E-BOOKS

CONCEPT NUMBER 1

Why dedicated gadgets are needed

▶ **E-BOOK READERS** are used to display electronic or digital books (e-books). Some of these devices, such as dedicated e-readers, have been designed and built for that sole purpose; others are intended for other purposes as well.

Three of the better-known e-book readers on the market today are the Amazon Kindle, the Barnes & Noble Nook and the Sony Reader. There are numerous other e-book readers, and **any PDA or computer that can display text on a screen is also capable of being an e-book reader.**

Popular e-book reader applications that run on the iPhone or iPod Touch, for example, include eReader, Stanza and Kindle for the iPhone.

The advantages of dedicated e-book readers are portability and readability. These devices are small and lightweight, typically weighing 0.28-0.31kg, and can easily hold entire libraries of digital books (Amazon claims that the Kindle holds up to 1500 books). They also use an electronic ink display technology, or E Ink, making the text as crisp and clear as it would appear on a printed page. The screens of dedicated e-book readers also offer great contrast with no glare or backlight.

CONCEPT NUMBER 2

The next step – multimedia e-books

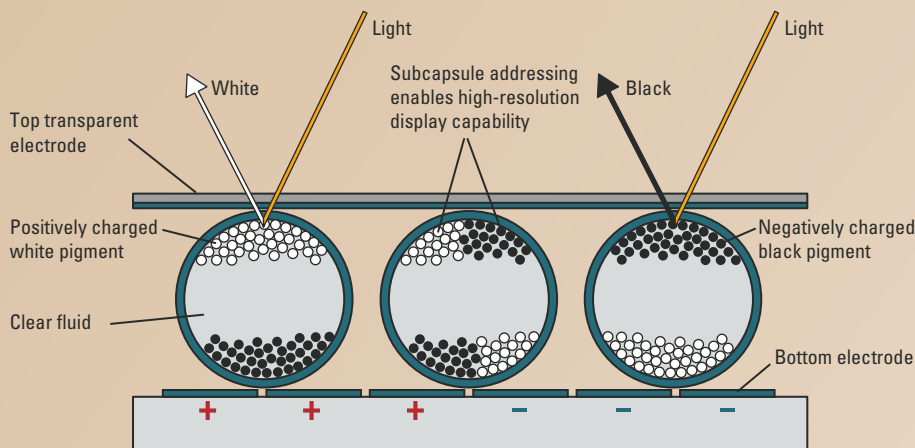
▶ **A MULTIMEDIA** e-book combines media and book content, for exam-

ple, text, audio, still images, animation, video and interactive content forms. In all likelihood, tablet computers such as the recently unveiled iPad will be the first multimedia e-book readers.



How electronic ink works

▶ A type of electronic paper, E Ink is a proprietary material that is processed into a film for integration into displays – particularly for e-book readers, according to E Ink Corporation. Electronic ink works with millions of tiny microcapsules, about **the diameter of a human hair**. In one incarnation, each microcapsule contains positively charged white particles and negatively charged black particles suspended in a clear fluid. When a negative electric field is applied, the white particles move to the top of the microcapsule **to become visible** to the reader. This makes the surface appear white at that location. At the same time, an opposite electric field pulls the black particles to the bottom, where they are hidden. By reversing this process, the black particles appear at the top of the capsule, which now makes the surface appear dark at that location.



CONCEPT NUMBER 3

Formats: the usual plethora of competing standards

▶ **WRITERS AND** publishers have numerous options when choosing a format for producing an e-book. Apart from plain text files (ASCII), HTML and PDF, three of the most popular e-book reader formats include Mobipocket, ePub and eReader.

Mobipocket is based on the open e-book standard using XHTML. It can include JavaScript and frames, and support native SQL queries to embedded databases. Mobipocket products support most Windows, Symbian, BlackBerry and Palm

operating systems. Mobipocket can even be used by Linux and Macintosh applications, such as Okular and FBReader, to read non-encrypted files. The Amazon Kindle .azw format is basically the Mobipocket format with a slightly different serial number scheme.

The ePub format is an open standard for e-books created by the International Digital Publishing Forum (IDPF). It can be read by the Barnes & Noble Nook, Sony Reader, BeBook, Adobe Digital Editions, Lexcycle Stanza, BookGlutton and AZARDI; by Aldiko and WordPlayer on Android; and by OpenBerg Lector, which is a Mozilla Firefox add-on.

Freeware program, eReader, is

designed for viewing Palm Digital Media electronic books. Versions of the reader are available for iPhone, PalmOS, Symbian, BlackBerry and Windows Mobile, as well as for desktop Windows and Macintosh. The program supports embedded hyperlinks and images. The Stanza application for the iPhone and iPod Touch can read both encrypted and unencrypted eReader files. The program supports features that enable users to mark any page with a bookmark, and any part of the text with commentary. Barnes & Noble uses the eReader format to also deliver e-books on the Nook reader.

CONCEPT NUMBER 4

The network connection

▶ **THE KINDLE 2** hardware device features a built-in 3G (HSDPA)

and EDGE/GSM wireless modem for **connectivity in more than 100 countries**. Users may thus download content without a computer over Amazon Whispernet using AT&T's network.

Like the Kindle, the Sony Reader PRS-900 and the Barnes & Noble Nook support 3G wireless access via AT&T's network. In addition, the Nook supports Wi-Fi access (802.11 b/g).

New interaction tech coming up

▶ **GESTURING** technology is being touted as one of the most significant changes to human-device interaction since the early 1980s.

A number of companies, including Microsoft and Hitachi, are reputed to be planning the launch of products that use "contactless" gesturing technology – to control gaming systems and TVs, for example.

Gesturing can also enhance interaction via the touchscreen. Users can place two or more fingers on the surface of the screen and move them across the screen to create gestures. This approach is perhaps the most interesting to the telecoms community, as it has the potential to powerfully improve the interface of small handheld devices.

Critical short-age of addresses

▶ **THE NUMBER** Resource Organization (NRO), which represents the registries that allocate internet numbers around the world, reports that less than 10 percent of all IPv4 addresses remain available. Further, it is anticipated that the remainder of addresses will be completely depleted in 2012. Therefore, if ISPs and businesses do not hasten their migration to IPv6, this dearth will threaten the network operations of virtually all businesses and organizations.

Policy control in one box

▶ **WITH POLICY** control, network service providers can guarantee bandwidth, allow market segmentation, assure fair usage, and stop services that degrade performance. Traditional offerings have addressed either mobile or fixed networks. Convergent policy control (CPC), is now coming to the market, enabling operators to employ a single core network to manage multiple accesses. Some obvious benefits of CPC are improved network architecture and management and simpler subscriber management.