

## Chapter Five

# CREATING A VIABLE E-TEXT MARKET

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Buying books would be a good thing if one could also buy the time to read them in; but as a rule the purchase of books is mistaken for the appropriation of their contents.

Arthur Schopenhauer, philosopher (1788–1860)

## INTRODUCTION

In this chapter we examine some of the factors that may lead to the increased acceptance of e-Text Readers and the development of a viable market for electronic texts, or e-Text. We are entering an era in which we expect to see many new technologies that will drive the design of the next generation of e-Text Readers. Specifically, we look at the impact that polymer based computing devices and electronic ink will have on portability, size, display quality and form factor. These new devices will cause us to change how we think about texts and books.

We identify the emergence of a new generation of readers, who are familiar with text that is technologically mediated, through their experiences with on-line chat, reading and writing e-mail, and reading and writing text-based short messages. For these 'new readers' screen-based modes of reading and writing are routine, in the same way that reading books, magazines and newspapers and writing on paper was routine for past genera-

tions. This is a shift in the fundamental *experience* of reading and writing.

Finally, we discuss the idea that books as products will be gradually supplanted by the idea that books will form part of a Product-Service System (PSS) in which the reader pays *to use* rather than *to own* a text. Such a shift acknowledges the role of technology as it increasingly mediates everyday reading and writing experiences.

## **E-TEXT DEFINED**

For the purpose of this chapter we will define the following terms; e-Book, e-Text and e-Text Reader.

### **e-Book**

An e-Book is a digital representation of a written work that can be read using either a hardware or software based 'e-Book Reader'. An e-Book can be printed allowing the thread of narrative and all non-textual content to be fully reproduced. Most e-Books are printed works which publishers also make available in electronic format.

Some e-Books are published works that have never existed in electronic format, which have been transcribed by hand into a digital file format. While manual transcription is very labour intensive, out-of-print publications can be exhumed and distributed cheaply to a geographically dispersed and specialised readership. Enterprises currently underway, which are dedicated to making out-of-copyright printed works available electronically, include Project Gutenberg and the e-Text Centre at the University of Virginia.

For the purpose of this chapter ‘e-Book’ will be used to refer to a traditional book or static body of text that is represented electronically.

### e-Text

An e-Text is a digital representation of a written work that can include video, audio, text, and graphics and may facilitate interaction by the reader, allowing the reader to directly question and contribute to the content. An e-Text can include hypertextual content allowing a non-linear, transtextual reading – disrupting the exclusivity of text and fostering an intertextual web of relationships. An e-Text can be printed, but the content will rarely be reproduced accurately or even make sense on the printed page, as much of it is intended for viewing and interaction in an electronic environment.

This definition of e-Text subsumes e-Books, and as such will be used most often in this chapter. The current generation of ‘e-Book Readers’ do not support all of the features outlined here, but as technology and the understanding of the media improves it is expected that e-Text will be supported in all its forms. It is important to acknowledge however, that such arrangements of text are only suited to certain types of knowledge. Currently e-Texts are seen to be suited to specialised situations where traditional books have drawbacks, for instance in newspapers, where it is important to have up-to-date content, and in textbooks when multi-media features are invaluable.

### e-Text Reader

The use of the term ‘e-Text Reader’ in this chapter refers broadly to a range of technologies that allow e-Books and e-Texts to be

displayed. These technologies can take a number of forms including:

- dedicated e-Book Readers, for example, the RCA eBook Reader and Franklin eBookMan;
- software readers running on desktop, laptop and palmtop platforms;
- software readers running on wireless hand held devices, such as mobile telephones; and
- future reading devices, based on emerging display technologies like electronic paper (for example, E Ink and Xerox).

Where 'reader' occurs on its own with no capitalisation, we refer to the person reading a text.

## **DESIGN METAPHORS – E-BOOKS, E-TEXT, E-TEXT READERS**

Metaphors that inform the conception and design of technological devices are powerful mechanisms in aiding the acceptance and use of these devices. Each metaphor outlined in this chapter provides a different way of thinking about electronic text and electronic text delivery. We define and explore five specific design metaphors that are important in understanding e-Texts and how readers, authors and publishers relate to them. These metaphors are: the page metaphor, the book metaphor, the artefact metaphor, the container metaphor and the service metaphor.

The page, book and artefact metaphors are useful in terms of rethinking the design of e-Text Readers. In particular it is important to understand how readers relate to these devices and which

aspects of current designs need to be improved in order to gain acceptance from readers.

The container and service metaphors present new ways of thinking about e-Texts for authors, publishers and readers. Publishers and authors need to be aware of subtle shifts in the way readers relate to and think about texts. These changes should be seen not as a threat to the business models of publishers, but as an opportunity to move *with* readers into the brave new world of e-Text.

### The page metaphor

The page metaphor is useful when applied to e-Text Readers as it leverages familiarity with books and allows information to be presented in a manner that is easily digested. However, it is important to realise that a single page is rarely useful in and of itself. The current generation of dedicated e-Text Readers, like the RCA 'REB' series and the Franklin e-BookMan, use a page metaphor as the dominant way of organising text. Pages are linked together in that they are organised in sequence and you can move back and forwards through them, but this simply allows you to view a stream of text through a page sized window. With current e-Text Readers we see only a page at a time, not a book but a collection of single pages.

In the case of the RCA devices, the two models are 'paperback' and 'hardback' sized respectively, where the 'hardback' model is even made to appear leather bound. These devices provide no indication to the reader as to the length of the book or the number of books contained within the device. These devices are designed so as to suggest the function of a book, yet they do not support many of the ways in which we intuitively use the

physical aspects of a book. Even the reliability and stability of the numbered page in a book is undermined by the technological capability of resizing the text, altering the number and numbering of 'virtual' pages.

On closer examination, it seems that the current generation of e-Text Readers utilise a strong page metaphor, but a very weak book metaphor. In order to fulfil the role of a transitional object, a richer book metaphor is required which is grounded in the physicality of books and the way we actually use them. A deep understanding of the relationship we have with books may well be the key to fostering acceptance of e-Text Readers and hence e-Texts among readers and bibliophiles.

### The book metaphor

In this section we examine the book metaphor and the next generation of display technologies, namely electronic paper, to determine the impact that these might have on the design and acceptance of e-Text Readers. The types of reading technologies outlined here offer transitional features that reflect and preserve long practiced rituals and ways of interacting with texts. These technologies recreate the physical experiences associated with turning a page and reading linear text in non-linear ways, and will be well suited to those people making the transition from traditional modes of reading to e-Text Readers.

Display quality is important to the viability of an e-Text market, because readers are more likely to adapt to e-Text Readers that provide similar definition to that of the printed page. Even the best of the current generation of display technology delivers an onscreen resolution of somewhere between 80 and 100 pixels per inch (PPI). Domestic printer technology routinely produces

output in the range of 300–600 dots per inch (DPI), the equivalent measure of resolution for printers.

Research at IBM has found that human visual acuity, at the normal viewing distance of approximately 45 centimetres from the screen, allows the reader to resolve detail down to one tenth of a millimetre ( $1/200^{\text{th}}$  of an inch). Based on this finding, a display resolution of 200 PPI was considered a minimum for comfortable viewing. Given that a device for reading electronic texts may be held closer to the eyes than this, say 30 centimetres, then the minimum resolution for comfortable reading would be higher again. IBM found that people read faster with higher resolution displays and that kerning (spacing of letters relative to each other) improves, so text looks far more like the printed equivalent. High display resolution is also very important for faithful depiction of non-Latin, ideographic text, such as that associated with Chinese characters.

In addition, computer monitors and laptop screens are light *emitting* displays, which can contribute to fatigue and eye-strain. This is very different to the normal experience of reading that is based on light *reflecting* off a paper surface. This characteristic of paper makes reading in naturally and artificially lit environments much easier on the eyes. At least three different companies are working towards providing display technologies that reflect light that will make the next generation of reading devices cheaper, lighter, less power hungry and much easier to read.

The company with the longest history in this area is Xerox. In 1975, Nicholas Sheridon, a research scientist at their PARC research facility, predicted that the future of electronic documents lay not in screen-based reading, but in paper-like electronic de-

vices that had the portability and resolution of paper and the flexibility of a computer-based display.

A design was conceived which consisted of millions of randomly positioned oil-filled bubbles in a plastic sheet. Each bubble contained a bi-coloured bead of contrasting colours where, for example, one half of the bead is black and one half is white. The beads carried an electric charge and were free to rotate within their bubbles. An electro-static charge applied to the plastic sheet would cause the beads to rotate and display one colour or the other. Partial rotation could also be achieved to display half tones. This technique could be used to display text and graphics on the plastic sheet. While a working prototype was constructed, the project was abandoned after Xerox moved the scientist in order to have him focus on technology more closely related to their core business.

Work only resumed on the technology in 1991, when the patents were in need of renewal. A number of related devices was also patented during this process: a high-speed desktop 'printer', a wand capable of erasing and rewriting a sheet in a swipe, and a stylus which allows the electronic paper to record hand writing. Xerox licensed the technology to 3M in 1999 in order to refine the mass production of the plastic beads required. 3M have demonstrated samples of this electronic paper that have achieved a resolution of 200 PPI and have announced that they expect to ship commercial product by the end of 2001.

E Ink, a company established in 1997 based on research conducted at MIT, has a commercially available wireless addressable sign technology, called *Immedia*. Immedia is currently in use in a number of US department stores and has found a novel application in the newspaper industry. The *Arizona Republic*, a Phoenix

based newspaper, is using the Immedia displays at 50 locations in the Phoenix area to automatically display headlines. As these displays are wireless, the head office of the newspaper need only update this information once for it to be transmitted to and displayed on each of these signs.

The MIT research effort, headed by Joseph Jacobson, was inspired by the earlier work of Xerox. Their solution was to embed ink filled bubbles in a plastic sheet and fill each bubble with white beads. This approach allowed the display to react to an electric charge, pushing the beads to the front of the bubble with one polarity and pulling them to the back with the opposite polarity. When the beads are at the front, the bubble appears white and when the beads are at the back, the bubble appears to be the colour of the ink (usually blue or black). This creates a display with a wide viewing angle and a higher contrast ratio than newsprint.

Currently the Immedia technology produces displays of about 5 PPI, and has some issues with contrast and viewing angle, making it only useful for large format posters. Newer prototypes of E Ink displays, produced in conjunction with Lucent have been made with printable plastic transistors that utilise traditional reel to reel printing techniques. These displays are flexible and are about a quarter the thickness and weight of standard liquid crystal displays (LCD) of the same size. Importantly, power consumption is less than one tenth that of LCD display, approximately one quarter of a watt.

Jacobson is now back at MIT working on 'conductive ink' in order to produce printable circuits for computation and wireless communication. With this technology a piece of electronic paper becomes a wireless computing device, allowing it to network with

other devices to dynamically update its contents, enable collaborative work or even take the place of a computer entirely.

A late entrant into the electronic publishing domain is IBM. Their technology is based on organic LED (oLED) technology in combination with low temperature thin film transistor (TFT) technology. The oLED deposit technology can be easily scaled to produce high-resolution large format displays and uses less than half the power of traditional LCD displays. The resulting display is as flexible as paper and capable of displaying full colour at greater than 200 PPI.

While this represents an advantage over the technology of E Ink and Xerox in terms of being a full colour display at the same resolution and scalable to larger sizes, there are some disadvantages. The oLED-based display needs a continuous power supply in order to display an image. The E Ink and Xerox technologies both display an image after power has been turned off.

Estimates as to the commercial availability of print equivalent electronic paper vary between companies. 3M estimates commercial production by the end of 2001, E Ink estimates that the incorporation of Lucent's printable plastic transistor technology will allow them to bring product to market by 2005, IBM estimates suggest that by 2003 they will be able to produce their e-Newspaper and similar devices in quantity.

If we assume that in the next three to five years electronic paper becomes widely available, our attention turns to how this new medium might influence the production of devices for reading electronic text. The current generation of devices is designed around a page metaphor, which presents information one page at a time, providing the facility to 'turn' pages forwards or backwards to move through the text.

With newer technology, like electronic paper, metaphors beyond those of the page warrant examination. There are many activities that we indulge in while reading books that supplement and enrich our relationship with the text. In particular we thumb through books to get an overview of material, rapidly navigating to zero in on sections that might interest us. Further to this, while reading a text we use spatial and motor memory to locate and inter-relate material – skills that permit a non-linear reading of linear texts. The current generation of e-Text Readers do not support this type of interaction at a physical level and hence do not allow this type of interaction with the text.

This is a problem that IBM and the German design studio Better.Design acknowledged when designing the prototypes for the e-Newspaper. In order to determine the most appropriate design they looked at how people actually used and related to newspapers. They found that the physical size of the paper and the amount of information that was represented at any one time were important. Additionally they found that people enjoyed the ‘serendipity’ inherent in reading newspapers, discovering articles they may not have even considered of interest, located near others they were reading.

As a result of this research the prototype of the e-Newspaper was made up of eight double-sided 21cm by 28cm sized sheets of electronic paper, bound together at the spine with a slender piece of aluminium that contained networking hardware and storage facilities. Such a device would be able to receive news updates and dynamically present information in a familiar format. When the Industrial Designers Society of America awarded the e-Newspaper a gold award for design exploration in 1999 they said that, ‘the truth is, we understand more about technology than

people, but it's people who use this stuff. Effectively linking past, present and future, the Electronic Newspaper is smart, fully technological and yet has the feel of a familiar object.'

A similar philosophy might inform future electronic book designs. The 'familiar object' might be a bound volume of 50 to 100 sheets of electronic paper that supports all the familiar physical interactions that we use in relation to the artefact known as a book.

Rich Gold of Xerox PARC, who is a member of the Research into Experimental Documents (RED) group, has some interesting reflections on how these new technologies might affect how we relate to text. In particular he talks about many of these new technologies contributing not to a convergence of modes of computer use and reading, but an *explosion* of different devices which facilitate text and image display. This presents the interesting and very real possibility that the bound volume of electronic paper is but one of many new devices that these new reading technologies will facilitate.

### The artefact metaphor

This section deals with the concept that e-Text Readers are physical 'artefacts' as much as they are devices that mediate text. As artefacts – objects which become part of everyday life – e-Text Readers evoke physical, aesthetic and sensorial meaning. Thinking about e-Text Readers as artefacts implies a need for specific design attention.<sup>1</sup>

The market for e-Text Readers and e-Text exists in an environment where the activity of reading is considered more important than the **mode** of reading, as if the activity of reading was separable from the mode. From this perspective the 'tangible

surface', or interface, between reader and content seems secondary or unimportant. The important interaction is perceived to be between writer, reader and the text, rather than the space where the content is mediated. Technological artefacts become just alternative modes and means of delivering a text.

However, the physical artefact (the book) with which the reader interacts has a special value for the reader; a value that is embedded, that is related to and relies on interactions that are external to the content. The book becomes something the reader can identify with and has a sensorial value that creates a personal involvement.

This view of a need to treat e-Text Readers as artefacts is based on two assumptions. The first assumption is related to the current reader 'stereotype', and the second to the way IT appliances are generally perceived.

The traditional reader has deep-rooted expectations of how reading will be experienced. Current designs have resulted in physical devices that do not facilitate familiar rituals that have evolved around the reading of books and newspapers. In the transitional period between books and e-Text, the design of e-Text Readers needs to reflect existing rituals. Artefacts designed for reading e-Text must become inextricably linked to the everyday experience of reading.

The second 'stereotype' is related to the specific physicality of IT appliances. Their embedded capacity to process, elaborate, modify, extend and link has dimmed the perception that IT appliances are also physical artefacts. This has created a distance between artefact and reader. This does not mean however that e-Text Readers cannot be designed using the same principles applied to everyday artefacts. If such principles are adopted, sen-

social reading relationships can continue to be a part of the reading experience.

The development of a viable market for e-Text will be tightly coupled with new ways of thinking about the design of e-Text Readers. In thinking about e-Text Readers as important artefacts, designers will need to acknowledge:

- cultural shifts in the way ‘actors’ conceive and relate to modes of reading and writing;
- that readers will have less difficulty in accepting technologically mediated text if this is via familiar artefacts and interactions; and
- the importance of designing artefacts that facilitate an *affective discourse* between users and the objects they own.

Additionally we have identified a number of key issues that need to be considered by publishers and designers of devices alike, namely:

- Experiences of reading are different, as each reader is different;
- Perceptions of e-Text Readers are determined by the user’s previous reading and writing experience, rather than the user’s age;
- The new generation of readers interacts with texts in new ways everyday, in ways exemplified by hypertext;
- e-Books, e-Texts and new modes of reading have tangible added values that are not offered by paper based modes of reading.

The first issue we identify relates to the needs of readers, the related market, and the way publishers design the aesthetic and physical layout, including the presentation of written content. Marketers of traditional books go through the same kinds of

processes and questions that should apply to marketers of e-Text. The specific needs and preferences of particular markets need to be considered, including the emotional attachment many readers express for books as physical entities. When asked to trial e-Text Readers, users express a sense of loss. They comment on the absence of the aesthetic pleasure they feel in anticipation, purchase and then ownership of a text printed on beautiful paper that they can share with others. These affective considerations, implicit in decisions to adopt new reading technologies, are often not considered.

The second issue relates to how the device is perceived and its related use. In the case of a very young reader, the e-Book, for example, could be considered as a gadget or a toy. For another reader the device could represent a simple means for obtaining content. In this case the perception of the device would be related to what the device enables the reader to read. For example, readers may perceive the device as an entertainment device when reading cartoons, as an information device when reading newspapers, or as a productivity device when searching text.

The third issue concerns the way a reader interacts, elaborates, digests, summarises, relates to, and connects with a text. In the case of a traditional book such interactions happen within the confines of the artefact. The interaction is bounded; it 'contains' the reader and does not encourage movement outside the content. Hypertext encourages movement and often works in unpredictable ways. These constitute differences in the reading experience. Using an e-Text, the reader can have an active role in the creation of a text by creating a tangible discourse with the content where information can be actively processed, modified and expanded.

The final issue concerns the added value provided by e-Books and e-Text. The authors suggest that the reasons why these devices and new modes of reading should be fostered are connected with the added functionalities and benefits offered by electronic texts.

In creating, designing, and planning e-Books and e-Text we need to consider that:

- An e-Book is a physical entity. As artefacts, colour, shape, texture, and ergonomic features are important. They represent the means by which the user will be able to relate to and communicate with the artefact.
- A reader is an individual that belongs to a specific community of readers and has specific needs, tastes, and ways of interacting. e-Text Readers should have the flexibility to be customised and be targeted to the appropriate communities of readers.
- Interaction belongs to the way people relate to the world. Technology enables us to enhance the interaction between reader and information. e-Text Readers should be designed to achieve such outcomes.
- e-Text Readers enable an active role in the processing of the content, creating a tangible discourse with the user.

Having addressed some of the requirements for the design of e-Text Readers we now move our attention to issues concerning the authority and credibility of e-Text and the ways in which some material is more suited to this form of mediation than others.

## The container metaphor

Traditionally publishers controlled who and what was published. Product was delivered in a 'container', the form of which had persisted for centuries. Authority and credibility of the text was implicitly inscribed in the container. In this section we use a container metaphor to identify some of the inherent qualities of books, how these are translated into e-Text, and how hypertextuality influences that translation.

The ability to link various discrete units, paragraphs, or sections of text, image or sound via a linking system that is mediated by a computer is commonly known as hypertext. This linking can be to a resource contained either within the current hypertext document, or to resources that are external.<sup>2</sup> Hypertext does not have the same physical boundaries as the book, thus it radically alters what constitutes a text. The text on a computer screen may appear to be the same as that contained within the printed book. Without the physicality of the book, it is difficult to ascribe the same singular boundaries and authority to the text. However, the absence of a physical boundary can be perceived as a benefit of the technology rather than a limitation.

A major advantage of hypertext relates to the ways in which it can be used to establish narratives. Narratives have been adapted to each successive textual medium, as that medium has evolved. A narrative is a set of demonstrated concerns, knowledge and practices that preserves the uniqueness of an academic discipline, over time. Narrative allows an artist, writer or academic to draw out, organise and communicate the knowledge that is central to his/her craft (Gartner, Latham & Merritt, p. 2).

Knowledge and information are two distinct classifications. Knowledge is information that has already been transformed, analysed, interpreted, integrated, articulated, tested in application, and evaluated (Laurillard, 1993 p.105). Knowledge is what non-fiction writers are supposed to display when they write books or papers. If the author merely recapitulates rote learnt facts or fragments of information, then they may have failed within the auspices of their profession. It is thus important to recognise what kinds of knowledge are suitable for an e-Book and what knowledge and information is more suited to hypertext. This implies that a writer or publisher should seriously consider the mode of publishing that is best suited to their text.

The dense linear narrative employed by many academic and specialist professions, may be best suited to the physical container of a book. This type of knowledge often requires closure, a thoroughly argued conclusive ending, and reference to other bodies of knowledge. The physical demarcations of the book provide just such containment. However, if such a book cannot be produced due to minimal demand, or is difficult to manufacture, then there are cost and accessibility advantages in producing and distributing the material as an e-Text.

The knowledge most suitable for e-Text is likely to be reference based, encyclopedic, or knowledge that requires constant updating, such as legal and medical knowledge. When such knowledge is made available hypertextually it raises reliability concerns. The authority and expertise of a web site is not commensurate with that of a law book or medical textbook. This does not deny a place in e-Text Readers for more static and contained texts.

Self-publishing is recognised as a benefit of the web, but how valuable is this knowledge within an academic institution? The web, which makes self-publishing easy, may make independently published works marginal because the credibility of respected publishers and the sanctioning and promotion they offer is missing. Thus any publisher of hypertextual knowledge must be willing to provide the value-added services provided by respected paper-based publishers.

The publishing industry adds value to a printed work in a number of ways that include design, editing, peer review, and a complex apparatus of distribution. Design adds to the aesthetic appeal as well as providing effective navigational aids, such as indexes and tables of content. Editing is important as there are often stylistic and communication problems in one's work that can only be recognised with the aid of professional editors. Without such services an e-Text publishing system will have limited credibility in a professional or academic context.

Some texts are better suited to publication as e-Text than others. The authority implicit in a published book is not easily translated to an e-Text. The services offered by traditional publishers such as sanctioning, promotion, and distribution are not redundant. Such services continue to be of value when a book becomes an e-Text. Hypertextuality offers escape from the containment of the traditional book. These characteristics constitute the ways in which inherent qualities of a book can be preserved while capitalising on the capabilities of new technologies and the ways in which text can be considered a service to readers.

## The service metaphor

In this section we deal with the conceptual shift required for a move from a product driven approach to an approach where e-Text and e-Text Readers are seen as part of the service economy. The service economy is representative of an orientation that is performance driven. In such a scenario we see the emergence of a transactional model where the consumer pays *to use* rather than *to own* a product.<sup>3</sup> He/she buys 'mobility instead of cars, cleaning services instead of washing powder and movies instead of video cassettes' (Friend 1994, Pantzar et al 1994, Popov et al 1997 in Mont 2000). From this perspective the reader moves from a perception of the *book as product* to the *e-Text as service* and the combination of e-Text Reader and e-Text as a product-service system.

The 'result service' is central to customers' satisfaction and products and technology are seen as modes of providing such results.<sup>4</sup> This represents a transformation in the traditional idea of a product. Designers must now consider situations where services overlap and mix with products and become product-service systems (PSS).

In such a scenario, 'production must become an activity leading to the creation and maintenance of a system of relations' (Mont 2000) that connects service providers with users. The physical product, the e-Text Reader, and the service, the e-Text, are seen as dynamic and interdependent entities in a PSS where the consumer becomes a co-producer of the desired result.

The re-conceptualisation of e-Text combined e-Text Reader as PSS opens up possibilities for new behavioural patterns in ways that redefine reader expectations. Referring to another evolving PSS, conventional music packaging, compact discs and cassette

tapes, the co-owner of myplay.com claims that people's sense of music ownership has changed. 'I actually don't think people want to carry stuff with them,' he says. Instead, listeners who are university-age and younger tend to think of music as a service and not a product. 'We went to college campuses and asked, *How big is your music collection?* And they would say *four gigabytes*' (The Age IT 2 February 13 2001). Digitalisation enables products to become progressively hardware independent and lend themselves to a transactional payment model. This process is strongly implicated in the redefinition of products as services and the creation of PSS.

The PSS concept derives from principles of sustainable design. Ezio Manzini (1995) has observed that: 'the subject which has to be faced ... is the redefinition of the very concept of product, production and consumption'. The convergence of the sustainable society and the information society produce forces that lead to miniaturisation and dematerialisation. It is these same forces that produce and enable e-Text and e-Text Readers.

Oksana Mont (2000) proposes that culture and business strategies should deal with both high technology and environmental sustainability. To achieve this, new sets of products should be conceived 'whose high technological content confers environmental value and, proportionally, to which the environmental value gives legitimacy and social sense'. This view implies that 'every company must question itself as to what its possibilities could be (the ensuing risks and opportunities) in the context of the new scenario. And, on the basis of this, develop new products and services (and, generally, a new industrial strategy) in order to be competitive in the new markets that may evolve' (Mont 2000).

Taking the perspective of a publisher, the re-conceptualisation of the publishing process as a PSS lends itself to a transactional model, where knowledge and information is exchanged for payment or goodwill. Rich Gold, of the Research in Experimental Documents (RED) group at Xerox PARC, talks about e-Books moving text from the domain of the *permanent* to that of the *ephemeral*. The move from a product driven approach to an approach where e-Text becomes ephemeral and e-Text Readers become product-service systems requires policy and decision makers to acknowledge a context where the reader pays to use rather than to own a text.

## CONCLUSION

We should not forget that a book is an artefact that has evolved over time and that people have evolved reading rituals in parallel with this artefact. Any consideration of the viability of e-Text, and the design of e-Text Readers, requires close attention to the nature of the book and associated reading rituals. e-Text Readers are physical 'artefacts' as well as modes of mediating text. They evoke physical, aesthetic and sensorial meaning. When we recognise e-Text Readers as physical artefacts we must accept that these artefacts require specific design attention to foster the *affective discourse* that happens generally between users and the objects they own.

Electronic paper and other polymer based technology will make devices based on these design principles possible. Artefacts designed for reading e-Text must become inextricably linked to the everyday experience of reading. Linking past, present and

future, a variety of new e-Text Readers will provide access to a broad range of content but provide readers with the look and feel of a familiar object.

This is not to suggest that a viable market for e-Text does not already exist. A 'new' generation of readers is developing based on changes in the ways people are experiencing reading and writing. These 'new' readers do not have the same psychological inhibitions about reading technologically mediated text.

The technological developments and changes in reading practices outlined in this chapter have a fundamental effect on the relationships between readers, authors and publishers. The advent of e-Text shifts the capacity to publish from the publisher to the author. It increases the potential for authors to deliver content directly to readers, increasing the volume of material available. However, readers are left to themselves to determine which texts are credible or 'worth' reading. We have identified that some text is more suited to e-Text publishing and that publishers of e-Text still have a role in providing value added services and the authority of respected paper-based publishers.

In addition the transition from 'book as product' to 'text as service' has a profound impact on the role of publishers and their relationships with both authors and readers. The physical product, the e-Text Reader, and the service, the e-Text, are seen as dynamic and interdependent entities in a product-service system (PSS) where the consumer becomes a co-producer of the desired result.

A key requirement for the development of a viable e-Text market is recognition on behalf of publishers that readers and authors are both redefining their own roles in this space. Publishers need to have a clear understanding of their role as suppli-

ers of value added services to authors, and brokers of e-Text to readers, in order to find a place for themselves in this rapidly changing marketplace.

## NOTES

<sup>1</sup> If we accept that a book is an artefact that has evolved over time, then we must accept that we have evolved reading rituals in parallel with this artefact. These rituals need to be considered in managing the transition to e-Text Readers. Over time new rituals will develop as a consequence of the everyday use of these artefacts.

<sup>2</sup> Hypertext is popularly known as hypermedia or multimedia and is the basis of the interactive and non-linear features of the Internet, CD-ROM, and a number of DVDs. It encompasses a broad range of software packages and software tools that allow individuals to construct Internet-based or other projects. Its understandings conceptually can equally be applied to the entire Internet, which is in effect, one global hypertext.

<sup>3</sup> Many authors highlight the importance of a major shift from selling the performance of goods instead of the goods themselves. It appears to be a 'situation where shareholder value and income increase, while production costs are decreasing; where market capitalization increases even if production does not. The business focus is now on vertical integration to reach, win and satisfy the final customer' (Multi-client Study on the Shift from Manufacturing to Services, 1998 and 2000)

<sup>4</sup> Manzini (1995) suggests there are four main types of product-service systems: shared utilization services, product-life extension services, demand side management and result services. For the purpose of this chapter we are interested in result services which can be defined as those services which aim to reduce the material intensity of existing systems by selling a 'result' instead of a product. The service provider typically takes responsibility for supplying, maintaining, taking back

and recycling all physical aspects of the system. Manzini also refers to this shift as being a dematerialisation of the product.

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