The Convergence of the Codex Book and the e-Book: A New Platform for the sBook that is Smart, Readable, Searchable, Networked, and Promotes Active Reading

Robert K. Logan,
Chief Scientist, Strategic Innovation Lab (sLab)
Ontario College of Art and Design
logan@physics.utoronto.ca

March 13, 2009 (Draft 1; Based on an idea drafted by RKL Oct. 14, 2005)

Abstract: We are proposing a platform for a new form of the book, the sBook, which is a combination of the codex book and the e-book. The sBook combines the advantages of these two formats of the book as well as some additional features that we have designed for this new hybrid book. We start with a codex book that has been "smart tagged" so that the book directs one's Enabler to a Web site that contains the digital form of the text of the codex book. The Enabler could be a desktop or notebook computer, a PDA or a smart phone such as the iPhone. As a result the sBook system consisting of the codex book, the Enabler, and the Web site is readable, searchable, networkable, smart and promotes "active reading". The book is very readable because the sBook still retains the codex format of ink on paper. Because the "smart tag" directs the reader to a Web site with the digital text and room for comments the sBook is both searchable and networkable. Finally by incorporating a recommender system installed on the Enabler the sBook can match its content to that of the reader's research and information interests. The recommender system can also search the Net for pertinent information. This paper explores some of the possible applications of the sBook and its impact on authors, readers, publishers, booksellers and libraries.

Starting Idea

We are proposing a new format for books by using a smart tag which could be a bar code, a QR code or an RFID tag depending on the application with a standard printed codex or folio book that points one's Enabler to a Web site that has the text of the book in a digital format. The Enabler could be a desktop or notebook computer, a PDA or a smart phone such as the iPhone. The resulting hybrid book, which we call an sBook, combines the features

and advantages of a codex book and an e-book as well as the added feature of a recommender system that is to be embedded in the Enabler. As a consequence the sBook is readable, searchable, networkable, smart and promotes “active reading”.

The sBook is readable because of its codex format and the fact that ink on paper is the best way to read text. It is searchable because the smart tag points to a digital form of the book’s content on a Web site. It is networkable because the Web site containing the digital form of the book is to be used for readers to share ideas about the book with each other and the author as is done on a blog. The author can comment on the readers’ remarks and also update her book either on the basis of readers’ comments or because of new developments in the field of study that the book addresses. Finally, the book is smart because it knows what the reader wants to know and it can recommend what parts of the book are of particular interest to the reader through the recommender system embedded in the Enabler. The recommender system has a profile of the reader’s research needs and information interests and has an internal and an external component. The internal recommender system is able to highlight those portions of the book that will be of particular interest to the reader. The external recommender system would be largely Web based and would bring information external to the book to the attention of the reader. The Enabler and the Web site with the digital text would also have tools to facilitate active reading consisting of the following activities: “annotating, quoting, comparing, searching, taking notes, sharing” as described in detail by Gene Golovchinsky (www.fxpal.com/publications/FXPAL-PR-08-468.pdf) in his article Reading in The Office. See also www.zenguide.co.uk/2008/05/going-shelfless/ for more on active reading.

The sBook system also allows a codex book to incorporate the advantages of hypertext through the Web interface. One would read the codex book with one’ Enabler close at hand. The author could indicate places in the codex text where one could jump to another part of the book or to another source of information on the Web, which the reader of the codex form of the book could access with their Enabler through the Web and thereby enrich their reading experience.

Our proposal is not the first example of a system that combines a codex book with a digital form of the text. There are for example many textbooks that come with a CD-ROM containing the digital version of the book.

Amazon has an Upgrade features (www.amazon.com/Upgrade-Books/b?ie=UTF8&node=293522011) which allows a reader to access an electronic version of the book they order on the Internet for a selected number of books. It also allows the reader to add highlights, bookmarks, notes or tags to any page in the book. Norton publishers have a series of textbooks that they offer in a standard codex form with access to a digital version of the book and an electronic workbook (SmartWork). They also offer the e-book version of their textbook for approximately half the price of the codex version of the book (www.**nortonebook**s.com). O'Reilly Media offers a number of their books in a print version, an e-book version and a bundled package of the two formats. Their e-book version comes in three digital formats, PDF, ePub and Mobipocket (for Kindle users).

What makes our sBook proposal different is that it incorporates so many useful features with the potential to change:

- the operations of libraries,
- the operations of bookstores,
- the operations of publishers,
- the way in which books are kept up to date,
- the way in which the book can become the focus of a social network,
- the way active reading is pursued,
- the way knowledge is shared,
- the way elearning operates, and
- the way researchers can more efficiently find the information they need for their projects without reading the whole book.

Our research agenda is to consider all possible configurations of sBooks and match them with possible applications in the future that tap into the needs, desires, expectations, and latent behaviours of potential readers and users. In this paper we will report on our preliminary progress in carrying out this agenda and describe a publishing project that will test the networking and upgrading features of an sBook.

A New Option for Publishers

The sBook represents a third option for book publishers in addition to the standard printed codex book (option 1), and the various digital formats of the book such as an e-book or a book on a CD-ROM (option 2). Options 1 and

2 have their unique advantages. The chief advantage of the printed codex or folio book is that it is the best form yet devised for readability. The codex format is also better suited for quickly browsing the book to get the feel for it especially if the book has a detailed table of contents and index and is written so that the contents of the book are summarized in the first few pages of the book. The advantage of the digital book, on the other hand, is that it is the format of choice for searching, researching and engaging in active reading. The e-book has the advantage that for a complex subject one can easily search the content of the book for topics of particular interest to the reader and thereby tie together related themes. This is particularly true if the e-book is written taking advantage of hypertext.

The sBook has all the advantages of both options 1 and 2 and in addition it can customize the content of the book for the specific use of the reader and it can create a forum for the discussion of the book. These features are particularly useful for books that are written and used for research. There is less of a need for the sBook format for a novel or a book of poetry unless that book is a classic that is frequently studied by scholars and students. But even for books that are purely literary the ability of readers to network with each other and possibly the author could be a distinct advantage.

If sBooks succeed in penetrating the market they will have an enormous impact of book publishing, booksellers, libraries and schools. Book publisher will not only have to print and distribute codex books they will also have to maintain a Web site for each book they publish.

As the number of sBooks increases there will be an impact on libraries. Imagine a library of sBooks in which a user enters with their recommender system on their Enabler and are directed to those volumes that are of most interest to them. Part of the function of the reference librarian will be taken over by the sBook. The library edition of the sBook will have to have a RFID tag that can transmit a radio signal over a long distance.

sBooks will also impact bookstores. Imagine walking into a bookstore with one's Enabler with an embedded recommender system and being directed to the books one would want to buy. How convenient!

Laws of the Media (LOM)

To gain a deeper insight into the nature of the codex book and the sBook that we are proposing let us apply McLuhan's (McLuhan 1975 & McLuhan and McLuhan 1988) Laws of the Media (LOM) for these two media.

LOM consist of the following four laws:

1. Every medium or technology enhances some human function.
2. In doing so, it obsolesces some former medium or technology, which was used to achieve the function earlier.
3. In achieving its function, the new medium or technology retrieves some older form from the past.
4. When pushed far enough, the new medium or technology reverses or flips into a complementary form.

LOM Codex Book

Enhances: the storage of and access to information
Obsolesces: oral tradition or myths
Retrieves: memory
Flips into: e-book

LOM sBook

Enhances: the codex book and hence readability, searchability, relevance, currency, active reading
Obsolesces: the traditional library and the manual search
Retrieves: the reference librarian and the book club
Flips into: the smart library and the online symposium

Protecting Copyright

In order to fulfill all the functions of the sBook that we have identified such as their use in a library or their availability at a bookstore and still protect the copyright of the authors the sBook will have to have three levels of access:

1. The privately owned version - The owner of the book can read the book in the traditional manner and also capture the data in the book electronically and transform it at will. They will be able to create a personal searchable library with a smart catalog from their collection of sBooks.

2. The library version – The library patrons will be able to read the book in hard copy and/or access the entire book electronically, which will allow them to search for and access items of interest in the sBook without having to read the entire book. This will facilitate a great deal of library research as scholars will be able to quickly access the material they need by organizing Google-like searches. They will be restricted, however, from the wholesale copying of the contents of the book onto their SB Reader or any third medium. A certain number of lines of text for the purpose of quoting will be allowed depending on the discretion of the publisher and the author.

3. The bookstore version– While the book sits in a bookstore before it is purchased it will be searchable but not copy-able. A collection of sBooks in the bookstore will allow customers to find a book or books that meet their interest and describe to them where in the store they may find them. They will be able to access the book electronically but they will not be able to copy any of the pages of the book except promotional pages at the discretion of the publisher and the author.

sBook Applications

In this section we describe a number of potential uses or application that can be made with the sBook system.

Other media - We begin by noting that the use of the sBook platform is not limited to books as one might wish to consider smart journals, smart magazines, and smart newspapers. Some features of a smart journal already exist as some journals are published in both a print and a digital form with space reserved in the digital form for reader comments. Most online versions of newspapers have a mechanism for reader comments but unfortunately they are too often used for flaming or promoting a particular political point of view rather than being used for entering into constructive serious dialogues.

Print-on-demand - A number of out of print book have been scanned by the Gutenberg Project, the Million Books Project and Google. It would be a real service to scholarship if some of these books could be offered in a bundle of the digital version and the print version produced by a print-on-demand (POD) service. Publishers might also wish to make their out of print books available in a digital/POD bundle.

Smart libraries – Imagine students and research faculty using their Enabler at their library's information commons to find the research material for their various projects.

An Invitation: To conduct our sBook research we have created a Google Group discussion group called Rethinking the Book. Readers of this article interested in joining our Rethinking the Book Google discussion group should email RKL at logan@physics.utoronto.ca and they will be included in the group.

Acknowledgements: The sBook was first conceived at the Strategic Innovation Lab (formerly the Beal Institute of Strategic Creativity) at the Ontario College of Art and Design by RKL in 2005. The authors wish to acknowledge the support of the Lab's director, Lenore Richards and the project team consisting of James Caldwell, Dave Gray, Peter Jones, Kathy Kawasaki, Gale Moore, Matt Ratto, Ramon Sangüesa, and Carlos Scolari.