

Strategic use of E-Commerce in the Transformation of the Publishing Industry

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ABSTRACT

The intent of this paper is to explore the strategic use of e-commerce in the transformation of the publishing industry. The first section of the paper explores the strategic use of e-commerce in the transformation of the publishing industry from a single distribution channel mass producer of printed books to a multiple distribution channel that will include e-books and “print on demand” technologies. Emphasis is placed on management strategies in the use of new information technologies in the global marketplace. The second section of this paper discusses the shift of competitive power among the various tiers along the publishing industry supply chain including the current developments in electronic publishing from the vantage point of the stakeholders. The implications and likely scenario awaiting the future business environment of the publishing industry is presented in the third section of this paper.

INTRODUCTION

Electronic “publishing” has enabled consumers to download files to either a personal computer or an e-book viewer to read text in a digital format as opposed to the traditional book printed text. The advantages to the publishing industry over the traditional printed book (p-book) include reduced printing/supply chain costs and reduced time to market through streamlined editing, proofing, and printing processes. Binding, distribution and shipping are eliminated. Revisions are simple. The need for physical bookstores and inventories are eliminated. Thus, the entire supply chain is shortened. Writers can now post directly to a publishing Web- site. Readability is enhanced and multimedia is possible. Usability for consumers is increased through hypertext links.

Depositing e-books in personal libraries on the Internet allows 24/7 access and enhances portability. Out-of-print books become available, and are immediately downloadable. Searchability exists and consumers have the flexibility to download (and pay for) a single page, a

chapter or several volumes. Space, physical damage and depreciation are no longer issues for either producers or consumers. User feedback and input give authors and producers quick and increased information about the market and the Web gives immediate access to international markets. Finally, the e-book expands possibilities for persons with disabilities by enabling large text formats and text-to-audio synchronization of e-books.

On the other hand, disadvantages accrue to many stakeholders along the publishing supply chain. Disadvantages include the presently relatively high cost to the consumer, if an e-book viewer or other reader device technology is required, publishers investing in new information technologies and lobbying for changes in federal and international regulations to protect the new digitized formats and mediums and dramatic strategic changes in business models for publishing houses to accommodate multiple distribution channels which include the Internet. Although there is a growing industry of e-book authors, publishers and bookstores, the lack the content presents a barrier to growth and profitability. The cause is attributed in large part to the lack of adequate copyright (content) protection in digitized content mediums such as e-books and the Web. Content providers are reluctant to make digitized content readily available until technology can provide adequate protections. The strategic changes necessary for effective on supply chain management in the publishing industry, with specific focus on e-books and “print on demand” requires that issues such as technology and technology regulations be addressed before larger gains can be attained.

LITERATURE REVIEW

The Strategic Use of Information Technology in the Transformation of the Publishing Industry on a Single Distribution Channel Mass Producer of Printed Books to Multiple Distribution Channels

The phenomenon of “disruptive technology” was first identified in Clayton Christensen’s book *The Innovator’s Dilemma*. (Christensen, 1997) Christensen found that neither mismanagement nor rapid technological progress was to blame in certain industry failures. Rather, the companies he studied failed to deviate from traditional principles of management, such as listening to customers and focusing on product improvements that appealed to higher tiers of their respective supply chains. Christensen found that entrant companies content to establish themselves in lower market tiers tended to succeed in the management of new and initially inferior technologies. A common theme among the disruptive company failures were those that promoted a technology that did not appeal to an established firm’s current customers because it typically promises worse performance according to the metrics that existing customers value. In contrast to disruptive technologies, there were those he identified as sustaining. Sustaining technologies are improvements that enhance product performance that is already valued by an existing customer base. The Palm VII is an example of sustaining improvement to the Palm V. The Sony Vaio laptop computer, while significantly different from previous generations, is an important improvement to its forerunners.

This transformation is also taking shape in the publishing industry due to the electronic distribution of content. In this instance, the consumer is the decision-maker, determining what content he wants, when he wants it, and how he wants it transmitted. Is the publishing industry facing disruption? The author concludes that leading publishing companies should create or partner with other organizations whose capabilities are consistent with those required to

successfully develop and commercialize new technologies if they want to learn from the failed companies who did not identify or mismanaged the introduction of disruptive technology (Overdorf & Barragree, 2001)

The strategic use of information technology in the publishing industry is exemplified by recent trends in the diversification of publishing companies in the multimedia and information industries. Since the end of the 1970's, for example, the strategy employed by many Dutch publishing companies has migrated toward a focus on foreign markets, and in particular, the United States. An important element of the international diversification strategy is the preference for specific locations of acquired companies. Dutch publishers are becoming more focused on acquiring specialized media companies in North America, mainly through the acquisition of state-of-the-art electronic publishing or multimedia companies (Bennett, 1999; Van den Brink, 1987). North America, particularly the United States, is the location where many, if not most, of the new electronic publishing technologies and new media are developed (Lichtenberg, 1999).

Allan Alter, Editor in Chief of Sloan Management Review, concludes that three elements must be addressed when "conceiving" breakthrough strategies and innovation. The first is to develop new ways to think about strategy, the second is to devise ways to more quickly execute strategy, and finally, invent new and effective ways of working. Innovation is not necessarily the same as core competence. Michael Beer and Russell A. Eisenstat discuss the factors that prevent the implementation of strategy. The management of information and the behavior and values of the work force are what break the "productivity paradox"—the connection between IT spending and productivity. Quality and cost are inversely related (Alter, 2000).

The Impact of Information Technology on the Supply Chain for the Publishing Industry as Between Printed Books and e-Books

The primary objective of supply chain management is to increase the value of products and services to customers through improved customer service and quality, and lower inventory carrying costs. The value created by a firm's supply chain management (SCM) efforts supports organizational strategy. Successful supply chain management can result in lower system inventories, a network of firms that responds more quickly to market changes, and products that more closely match customer expectations. Thus, firms pursuing differentiation, cost leadership, or quick response strategies, or combinations of these can all find benefits from value system or supply chain management. Porter stressed the importance of buyers and suppliers matching their needs with the capabilities of the other in order to maximize product differentiation and minimize cost (Burt, 2003).

Bloor focuses on academic scientific publishing as a form of documentation and communication of scientific findings in the converging information and communication technologies. She assesses the current state of technologies and forms of publishing electronically. Electronic publishing is a term that is used to cover a wide range of different technologies, uses of technologies and types of information. Many of these types of technologies are interrelated, and may become more so as software and hardware convergence takes place, making transportation of information easier and more efficient (Brown, 1996).

Electronic publishing is also interrelated in function and form through the operation of the competitive market; the multiple use of different types of technology at different stages in the

production of academic information; the use of several types of technology simultaneously. In addition, the organizational, political, economic and social policy contexts in which technologies are being used affect not only how that technology is used, but how it operates within the context of a whole research system (including the activities of publishers and the producers of research material, Manoff, 1966).

The development of new markets in electronic publishing is dependent on a variety of factors, including electronic convergence, continued development of infrastructures and access to them by customers; and the ability of relevant businesses and organizations to adjust to and facilitate these changes (Bloor, 2000).

Margaret Tan and Thompson Teo explore the role of IT in shaping business operations in the publishing industry, taking it from a low technology operation and transforming it into a high technology operation. The conventional printing industry is a fairly low skilled and labor intensive operation. Most tasks were manually driven, time consuming and tedious. For example, the print materials had to be typeset and arranged in the appropriate format using cut and paste techniques to develop draft copies. Often several drafts had to be produced before the final product was approved. Today, most prints and type setting are handled by desktop publishing software (Tan & Teo, 1997).

Paula Hane addresses an end-to-end software solution with application to which enables the secure distribution of Adobe PDF e-books in an article entitled "Adobe Systems Introduces Adobe Content Server. This technology allows content providers, libraries and businesses to offer digital subscriptions of PDF content to consumers or users. The software features give distributors control over the number of people who access content. For instance, a library, through its Web interface, can allow users to "check out" and receive an e-book, without being connected to the Internet to read them. Thus usage rules can be established which cause an e-book to "expire" after a certain period of time and the e-book is automatically disabled on the user's computer and is "returned" to the library catalog. Furthermore, through a browser-based interface, the Adobe Content Server 3.0 links key functions of the e-book supply chain for easy packaging, encryption and distribution of e-books over the Internet. It provides protection for copyright holders by allowing them to set rights and permissions, including whether content can be copied, printed, or lent to others (Hane, 2002).

Implications for the Future of the Publishing Industry

Jim Milliot describes how the e-book unit has not generated significant revenue for the parent company. In the first quarter ended March 31, 2003 e-book sales were \$1.6 million, down from \$1.7 million in the comparable period in 2002. Gemstar generates sales through licensing its technology, the sale of devices and royalties from the sale of e-books that are sold through Gemstar's proprietary system. Gemstar tried to create a niche for itself by offering a system that runs only e-books, as an increased protection against piracy, but it resulted in limiting customers to those who owned Gemstar devices (Milliot, 2003). Subsequent sales, as demonstrated by Amazon and others have proven to be a great deal more promising, including electronic distribution via libraries.

The Copyright Office is holding hearing as to whether changes should be made to the Digital Millennium Copyright Act prohibiting libraries and consumers from bypassing copy-protection locks in DVDs, CDs, and E-books, as reported in *American Libraries*, May 2003. The hearings

in California took place at UCLA Law School in Los Angeles on May 14 and 15, 2003. No conclusions have been published as yet.

In *Computerworld*, March 24, 2003, Daniel Weitzner explains that the Digital Millennium Copyright Act (DMCA) extends copyright protection to digital works (of any kind, whether music, movies or books) and makes it a crime to use or distribute tools that help to break the copyright protection of digital works. These anti-circumvention provisions have been controversial. In a recent lawsuit specifically involving e-books, charges against a Russian software company that makes software to break the copy protection built into e-books, a jury found that the software is not criminal because there are legitimate reasons to allow users to make copies of information in e-book format. This is a case of first impression, and whether it will be upheld, if appealed, remains to be seen. Historically, the category of “books” (whether traditional or e-book) have been subjected to tests of “fair use” that music and film have not. One can speculate that as the reasons, the most popular being that the spoken and the written word fall under the penumbra of “fair use” more readily than do song or film, although all forms are “expressions” that are protected under copyright law (Weitzner, 2003).

HYPOTHESES

The hypotheses are posed as three questions:

1. “How does the strategic use of e-commerce effect the transformation of the publishing industry from a single distribution channel mass producer of printed books to a multiple distribution channel producer of e-books and ‘print on demand’ content technologies?”
2. “What impact has the strategic use of e-commerce had on the supply chain of the industry to date?” and
3. “What are the implications for the future of the publishing industry?”

RESEARCH METHOD

The research method applied to this study is a review of the literature on the subjects of:

- the strategic use of e-commerce in the publishing industry with particular focus on the channels of distribution;
- the impact of e-commerce on the supply chain for the publishing industry as between printed books and e-books; and
- the implications for the future of the publishing industry.

FINDINGS

Electronic Books (e-Books)

Electronic books are read on special devices that are usually about the size of a paperback book. The screen fills the front face, leaving room for some buttons along the side, which also serve as a handgrip. A telephone cord can be attached and by tapping on the screen's virtual keyboard, a list of books can be brought up and made available for download. Readers can scroll through the selections that contain a quick review and cover illustration. By clicking on the purchase button and verifying credit card information the book can be downloaded in approximately 3 minutes. There are built-in dictionaries, bookmarks, underlines and electronic notes available to the reader.

There are many types of e-book formats currently on the market. Some e-book files can be read on conventional desktop, laptop, or handheld computers. These files require e-book reader programs, most of which are available at no cost and are downloadable via the Internet. The other types are dedicated e-book devices designed solely as electronic readers. These devices use proprietary file formats and are not compatible with the computer-based e-book readers. Sales related to electronic books of both types were expected to increase from \$100 million in 2002 to as much as \$3.5 billion in 2005 (Simpson, 2001).

Criteria that have been defined to currently define an e-book are:

- An electronic book must have electronic text, which must be presented to the reader visually.
- The software must adopt the metaphor of a book in some significant way.
- The software has to have a focus or an organizing theme.
- When media other than text are available, they are primarily used to support or enhance the text. (Anderson-Inman & Horney, 1999)

Project Gutenberg, began in 1971, and was important in establishing an information technology standard that defined the means by which text can be read on e-readers. It creates digital text in a simple format available at (<http://promo.net/pg>). Text files are in the simplest form of machine-readable text files or the low set of the American Standard Code for Information Interchange (ASCII). This format excludes supportive features such as hypertext, as well as normal formatting, such as bold, italics, or underlining. Project Gutenberg also limits digital texts to those already in the public domain (i.e., those for which copyright is no longer in effect). Programs such as Reader-Works (Overdrive, 2000) and Acrobat Exchange (Adobe Systems, 1996) use ASCII text-based material to create educational materials in the form of supported text files for Microsoft Reader and Acrobat Reader programs, respectively.

Digital files for e-book devices such as the current Kindle2 and the new bendable film substrate-based reader from Fujitsu can be downloaded from publisher/bookseller web sites (Boone & Higgins, 2003).

Print-On-Demand

While independent publishers are devising strategies to cope with returns others are devising strategies to cope with electronic publishing. Most publishers seem ambivalent about e-books, but several publishers are teaming up with online information providers. Print on demand (POD) is a growing market. While the cost of POD is a bit high, it has long-term prospects. When prices come down it will be an advantage for independent publishers. Successful large publishing houses find niche areas and publishing quality books (not vanity presses) are most successful.

Transformation of the Publishing Industry from a Single Distribution Channel Mass Producer of Printed Books to Multiple Distribution Channels of e-Books and “print-on-demand” Technologies

The transformation of the publishing industry from a single distribution Channel mass producer of printed books to multiple distribution channels can be illustrated by examining the effects on the e-publishing industry. Although the e-book may not exceed 10 to 30% of the total publishing market over the next decade, as some have predicted, it appears to be here to stay and enhances the reading, experience of the consumer at a potentially lower cost, while providing profits to authors and publishers. Furthermore, a significant strategic move by many key publishing houses today is to acquire specialized media companies in the United States who have state-of-the-art electronic publishing or multimedia companies.

For example, Elsevier, founded in 1880, merged with Reed in 1992, and then the company became known as Reed Elsevier. Through the merger, it became strongly represented in North America, Europe, and the Asia Pacific region. Reed Elsevier is a leading publisher and information provider globally, with a focus on three key market areas: science, law and business. Reed Elsevier's product-markets are undergoing rapid and accelerating changes with the migration of information from print to electronic format and the additional interactivity that electronic services offer. Based on this change, the strategy of Reed is to become an indispensable partner to their target consumers for information driven services that provide solutions across their core businesses, capitalizing on the potential of the Internet is a key driver. Acquisitions and alliances, particularly in the context of Internet development, are all transitioning into electronic markets. All are becoming more global, and the Internet is becoming the preferred customer access system. But, to transform itself from a traditional publishing company into an electronic publisher demands a huge reorganization and investment. Although the electronic media group will work closely with the printing brands and marketing, they will independently pursue growth opportunities in existing and carefully defined new market segments. This publisher, in a traditional sector, prefers to diversify gradually, over time, though related activities.

The Impact of e-commerce on the Supply Chain for the Publishing Industry as Between Printed Books and e-Books

The emergence of the Internet pushed established companies to explore not only new distribution channels; such as the Internet, but also new models for their supply chain management.

Publishing was one of the many forced to consider new ways of conducting business with the advent of the digital age.

An important note is that many firms have not yet established an Internet presence and many other use their Web sites only for promotional purposes and not yet as distribution channels. In a recent large-scale survey of Belgian firms, Konings and Roodhooft (2000) found that of all firms that have access to the Internet, only 57% have their own Web sites, and an even smaller fraction (15%) uses those sites as additional channels to sell products online. In the United States, recent estimates indicate that more than 40% of all businesses do not yet sell online (www.nua.com/surveys; www.ecommercecommission.org), a number that increases to more than 70% when the largest businesses are excluded (Geyskens, Gielens & Dekimpe, 2003).

The study speaks to the introduction strategy and marketplace characteristics that influence the direction and magnitude of the change in performance potential associated with an Internet channel addition. It was noted that not only are several of the performance-enhancing and performance-destroying forces present in this particular industry, but also electronic publishing is expected to act as a “pacesetter” for the Information Society (European Commission 1996, p. 1).

Even though e-books and print on demand, as components of electronic publishing, will have a significant impact in the reduction of cost and will improve the distribution of published materials throughout the world, it does present a tremendous threat to the core business model of the industry in terms of financial distribution.

By focusing on the major levels of the supply chain (the authors, the publishers, the distributors, the retailers, and the consumers), one can easily see that legal issues will most likely initially impact the upstream portion of the chain more than the downstream. From a legal point of view, the most valuable asset along the chain is the content, which is traditionally protected internationally by copyright law. The content owner/provider, in this case, the publishers, should bear most of the burden of the changes due to the difficulties in protecting the copyright of their materials in the new electronic media. Since most of the content can easily be digitized and be exposed via computers and distributed via the Internet with practically no effort or cost, traditional means of protection will not work effectively.

New media forms such as the Internet may challenge traditional distribution channels through major distributors. There is a risk of these traditional distribution Channels being bypassed in the long run as in the case of a larger number of industries. This is especially true in industries where the product can be easily digitized. Unless there will be enhancement or modification of the digitized products at the distribution level, electronic distribution by the traditional distributors will add no value to the supply chain.

The originators of the content, authors that are well known or not, can expect to see their positions improved in terms of bargaining power. In particular, unknown authors may have a better opportunity to gain new access to the consumers through the Internet if they can provide their content in digitized form. But these authors will have difficulty handling the legal aspect of the content due to the complexity and cost involved. So, in some sense, the publishers will have to be involved with the publishing end of the content with a new and improved distribution system. If the new distribution system is sound enough and is strategically designed to eliminate the traditional distributors, then it will significantly impact the survival of distributors in the industry. If carried out to an extreme, in other words, the powers within the industry will do nothing innovative and the publishing industry supply chain may see a repeat of the movie

industry over the past fifty years. That is, the movie studios have lost their power and grip over the actors/actresses and directors/producers and only act as the distribution channel for these newfound powerhouses.

In 1999 over thirty international telecommunication companies agreed to build a communication network designed to link 175 countries with 320,000 kilometers of fiber optic cable carrying 320 billion bits per second. The increased bandwidth translated into faster network communications and file transfer. The increased bandwidth provides faster network communications and file transfer, with point-to-point network services. The Internet will capitalize on the increases in bandwidth. As of now there are 37 million persons on-line in Europe alone. Thirty-eight per cent of European companies have intranets. By the year 2001 there will be 133 million intranet users worldwide. One of the primary uses of corporate intranets is document management. The Internet is a phenomenal digital accelerator for print providers. It levels the playing field between large and small companies and allows everyone to become a global player.

It was thought that the digital print engine was the key issue. That on demand is all about the digital printer. But, technology is only a tool. It must be understood that the tolls are only the enablers to help create a customer relationship. In the past companies worried about which digital print engine to buy. Now all printing technologies offered in this segment have a solution. But, they do not have bandwidth telecommunication, fast networks, powerful databases or document management and content management software. (Bitsch-Christensen, 1999)

Print on demand publications that are ordered on the Web-online publishing for the most part today is not threatening the print counterpart of publishing, but rather, complementing it, augmenting content, providing searchable archives, and bringing time-sensitive information to the reader faster (Levesque, 2003).

Implications for the Future of the Publishing Industry

The confusion and conflict surrounding regulatory and legal issues attributed to digital content, coupled with the debate as to whether supply chain management in the publishing and other industries is providing promised returns, requires that management assess the impact these issues will have on the publishing industry and the part that information technology will play in making strategic decisions.

In a 1993 interview, Jack Sparn, VP of Data Center Operations and Technical Services at Tim, Inc. said that the publishing industry, "now more than ever before, is technology driven". As a wholly-owned service and data management subsidiary of Time, Inc., one of the world's largest and most profitable publishing concerns, Time Customer Service is an information based company. The collection and use of data is vital to the services it provides to its clients and customers, and technology is the vehicle used to capture, store, manage and distribute this mass information. Time Customer Service's most strategic applications are the order processing, customer service, distribution, billing, and marketing information systems. Time Customer Services' domestic and international magazine marketing fulfillment systems are among the most sophisticated in the industry. With international markets expanding at such a rapid pace, information technology requirements in the world marketplace are becoming even more integrated into Times' overall information technology strategy (Cheney, 1993).

Moving forward in time, In the November 2001 *Technology Review* author Wade Roush presented digital rights management systems that purportedly would enable e-books to be published with customized usage rules. However, quickly on the heels of that, it was revealed that a "home-brewed" decryption program was available that defeats most anti-piracy features built into Microsoft Reader, a leading e-book program. The decryption program was said to allow purchasers of owner-exclusive Reader titles, Microsoft's most protected e-book, convert the titles to unencrypted files viewable on any Web browser. The program was written by a cryptography expert who wanted to circumvent the two persona limit (meaning the e-book cannot be read by more than two devices), a rule built into the Reader.

Many e-book readers, similar to the opinion of consumers of music media, feel that once they have purchased an item, such as a book, they should be able to read it wherever they want, regardless of the number of activations or the medium used. The programmer claims he wrote his decryption software to sidestep the number of activations and so he could display on additional devices such as the REB 100, a reading device manufactured by RCA. This seemingly represents the vast majority of consumer consensus on the subject of protected content and the transportability of the content among various mediums, whether it be music, film or books.

A study sponsored by Adobe Systems, Inc., EDS, Hewlett-Packard and Nokia assesses the potential impact and prevailing trends of the network publishing industry. Network publishing, referring to the processes and technologies used to create, manage and access digital content over the Internet, appears to be lagging behind along continuum of progress made by the digital content providers of music, film and text. Conducted by management consulting firm A. T. Kearney, the study developed a framework for how the Internet and emerging technologies in wireless, imaging and other areas will change the way people and organizations use digital content to create value. Key findings of the study include the following: (1) workforce inefficiencies related to publishing will cost organizations around the globe approximately \$750 billion in 2001 (based on workers wasting between 15 and 25 percent of their time engaged in non-productive publishing activities); (2) digital content is becoming key to a company's ability to develop and expand commerce, foster collaboration within and between organizations, personalize sales and customer service, and disseminate information both internally and externally; (3) Product and service providers in the network publishing industry are developing the necessary information technology tools and services to enable network publishing for publishers and end users. This continuing technology boom will help grow the network publishing market to more than \$250 billion by 2004, representing one fifth of worldwide information technology spending; (4) new media companies will be among the first movers in the network publishing market. Such companies are major, multimedia publishers that also offer the services and tools needed for network publishing. They already have a dominant Internet presence as well as the capability to distribute content among different media streams; (5) Effective partnerships between ecosystem participants, multi-platform standards, and new technological developments in compression and digital rights management will be among the critical success factors that will expand the network publishing market, and; (6) Software vendors will be critical to the development of a network publishing market (Anonymous, 2001).

CONCLUSION

If, as McWilliams says, “There’s no way to control the Internet It’s as though the printing press has been invented again... You can move text around the world at the speed of light at almost no cost, why would users pay even nominal fees, if they can use it without penalty?”, then the effect is profound for the publishing industry.

It would seem that there is a need for standards to serve as the foundation for growth within the digitized print industry. As e-publishing comes to become popular and moves towards maturity, common standards must emerge and combine to enable a “mainstream” status. New information technology will likely advance and provide copyright owners the technical means by which to more effectively monitor and enforce their rights. Because of the significant cost reductions attainable in delivering electronic, as opposed to print, materials the copyright fee (license) will likewise be significantly reduced to a level that the “market can bear,” eliminating the discontent of many consumers that exists today. But, the redistribution of “power,” which has been defined as the ability to dictate and control lower tier suppliers along the supply chain, and perhaps even stakeholders, in the value chain will likely materialize within the next decade. E-publishing is not likely to replace traditional print during the alignment of digital and traditional intellectual and other regulatory rights. But, it will continue to evolve and grow as the basis for new multiple channel distribution models, just as the music and film industries appear to have evolved and transitioned ahead of the publishing industry. Future research might determine if there is a significant correlation between the earlier forms of media (print) requiring time-frames of evolution and transformation than later forms of media (recorded music and film).

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