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# Natural Selection: E-Books, Libraries, and Vendors

A HARRASSOWITZ White Paper

**ABSTRACT:** The e-book environment is crowded, dynamic, and still evolving. Publishers, aggregators, technology providers, print book vendors, subscription agents, and knowledge-base providers all seek a viable role in this “natural economy.” The Darwinian concept of “natural selection” offers a lens through which to view the traits and adaptive behavior of these many species as they compete with one another to develop services. If, as Darwin posits, successful adaptations are based on combinations and variations of inherited characteristics, which species of vendor are best suited to the hybrid print/electronic environment, and which will dominate book purchasing for the foreseeable future?

***“After any [environmental] change [...], new places in the natural economy are left open for the old inhabitants to struggle for, and become adapted to, through modifications in their structure and constitution” [1].***

### Introduction

2009 saw an explosion of activity in the e-book marketplace, and with new developments on the horizon, this rapidly evolving trend is showing no signs of slowing. In late 2009, Google announced a new service called Google Editions, which will sell current e-book content, delivered in a format that can be read on a PC or any device that supports the ePub standard [2]. The service, expected to launch sometime in 2010 with 500,000 titles, will instantly surpass the title count of any other e-book aggregator. Hathi Trust, a shared digital repository and archive for the thirteen universities of the Committee on Institutional Cooperation and the ten campuses of the University of California, released the first version of its full-text search capability, which operates against its collection of more than 4 million digitized books [3]. This year, Europeana will launch Version 1.0 with links to 10 million digital objects, including millions of electronic books in dozens of languages [4]. These massive repositories begin to tap the potential of digital books in a new way, using the medium to improve accuracy and convenience in discovery of e-book content. In a presentation at last year’s ALIA Information Online, the e-book aggregator EBL stated that 60% of its library customers were participating in some form of demand-driven acquisition activity, in which e-book content is rented or purchased only when requested by a patron [5].

These are only the most recent changes in an institutional e-book supply chain that is still in the process of formation. Changes in content production, user preferences, business models, and library practices have converged to alter fundamentally the information environment that we have known since the 1970s. The transition from print to digital as the dominant information format began with journals in the 1990s, and is largely complete. Government documents, reference works, and specialized books have all advanced far in the same direction. But while individual e-books have been sold for at least a decade, it is only now that sufficient content is available to alter buying habits on a noticeable scale. The production and distribution of monographs has begun to change, and selection, acquisition, and delivery of new book titles will never entirely return to its previous form.

This white paper seeks to identify the characteristics of a successful e-book supplier. The underlying questions are difficult, related to the evolution of the form itself: will e-books behave more like print books or more like other electronic resources, such as e-journals and databases? Do e-books constitute an innovative hybrid of the two? Or will they develop into ways entirely new and unfamiliar? The answers to these questions have important implications for the companies that supply e-books, as each supplier (and species of supplier) will develop services based on its individual convictions about these issues.

At present, the library e-book environment teems with life, as many contenders struggle for existence, and compete for the diminishing resource that is the library materials budget. It is questionable whether the environment can sustain the current abundance of species, which include print book vendors, subscription agents, e-book aggregators, knowledgebase providers, and publishers. To survive and thrive, each species must adapt and differentiate itself, must modify its “structure and constitution” to obtain some advantage. Some may develop unique variations on existing competencies; others may assimilate new information or develop new skills or relationships; still others may arrive from other environments, with entirely different assumptions and skills. Over the next decade, the competition between old and new inhabitants of this altered environment will intensify. Those species which evolve “advantageous variations” will endure.

***“Natural selection acts solely through the preservation of variations in some way advantageous, which consequently endure” [6].***

### **The Library Environment**

Even before the economic downturn of 2008, libraries were struggling to redefine themselves. The rise of the Web and the evolution of information-seeking behavior spawned by various search engines continue to challenge libraries to adapt their services to remain relevant to users. Libraries themselves are locked in a struggle for existence and differentiation with a range of other information providers, pursuing their own adaptations in a difficult environment.

For most libraries, the recession has intensified the urgency of these pursuits, as cuts to materials and operating budgets force deeper scrutiny and harder choices about content, staffing and service priorities. Among many research libraries, electronic resources routinely consume 65-70% of materials expenditures, with corresponding constrictions on print monographs purchasing. This pressure, combined with tighter budgets overall, is beginning to affect library buying patterns, especially for monographs. Experimentation with e-books and just-in-time models of acquisition is on the rise, with encouraging results from some of the early work, such as the two-year study of patron-driven e-books at University of Texas at Austin [7]. All of this will have major implications for suppliers.

**In the e-book context, a number of trends and likely developments merit special attention:**

- ▶ ***Demand for e-books will grow significantly in 2010.*** A number of factors suggest that 2010 will see the onset of e-books as a major component of library acquisitions. First, budget pressures and perennially low circulation rates for print monographs have generated strong interest in patron-driven selection, a technique that depends on e-books for timely access. In the study cited above, the University of Texas allocated \$300,000 for patron-selected e-books. While few libraries will implement a program that large, most are likely to set aside some portion of the FY10 budget for patron-selected e-books. Second, there are higher levels of awareness and acceptance of e-books. Influenced by their familiarity with electronic journal content, widespread media coverage of e-books, higher discovery rates, and increasing use in the curriculum, students (especially off-campus and distance-learning students) will increasingly seek and find them. Third, space pressures are leading administrators and collections officers to consider acquiring less print and other tangible content, seeking instead to provide electronic access. Finally, thanks to large-scale digitization programs and increased e-book production by publishers, a critical mass of e-book content is finally available. As users discover the benefits of e-book content, they will be motivated to seek it again when the need arises.
  
- ▶ ***Lower levels of print book purchasing will increase comfort with e-books.*** To cite just a few examples, Cornell University expects an 8% reduction in its materials budget; Stanford projects a 7-10% decline; the University of Washington would buy 4,300 fewer books under its 8% mid-point scenario for reduction; and Yale forecasts at least a 6.75% reduction [8]. Approval plans are being trimmed in many libraries. Administrators prefer to protect high-use electronic resources when possible, which leaves less money for print monographs. Some libraries, such as the University of Vermont, are experimenting with on-demand purchasing of print, essentially shifting from just-in-case to just-in-time acquisition, and ultimately purchasing fewer books. Short-term circulation e-book models further reduce the need to buy and hold print so extensively. Because of short-run digital printing and print-on-demand, new titles are at far less risk of going out of print, again reducing the need to purchase print titles speculatively. The difficult budget conditions of 2010 have created incentives to experiment with some of these approaches, which ultimately rely on electronic delivery. As a result, patrons and librarians will become accustomed to the e-book format, and will even come to expect it. If and when materials budgets return to former levels, libraries will use the increments for still more electronic content.
  
- ▶ ***Libraries will operate in a hybrid print/electronic environment for many years.*** This rather obvious statement has deep implications for library workflows and vendor services. Recent estimates suggest that perhaps 25% of new titles are available in e-book form (and only 10% simultaneously with print), a figure that guarantees ongoing (though ultimately diminishing) print workloads. As the experience with e-journals has shown, libraries will continue to deal with both formats for a very long time. Operationally, this increases

complexity significantly. Edition matching, duplication control, and tracking the composition of publisher and aggregator packages all require additional data and attention. Workflows for print and electronic books overlap to some degree, but not entirely. Without additional tools and services, confusion and inefficiency are likely. Vendors, especially those who can enable simultaneous consideration of variant print and electronic editions, will be needed to support these increasingly complicated tasks. In short, there is an overwhelming need for the kind of distribution infrastructure that vendors and agents have historically provided: systems, data, and supplier relationships that offer a consolidated view of options and transactions.

- ▶ ***E-Books add complexity to the supply chain.*** In the print world, a vendor obtains books from the publisher, and manages ordering, invoicing, and fulfillment to the library. In the electronic world, the vendor handles ordering and invoicing transactions similarly, but the proliferation of options creates additional complexity. Any given title from a single publisher may be made accessible to end users through a half-dozen channels, and on as many different platforms. These include the publisher's own platform; those of pure e-book aggregators; and print book vendors who have built or licensed their own hosting capability. Fulfillment may require licensing and activation. There is no physical artifact to guide the workflow. URL and proxy server maintenance, ERMS implementations, access verification, and trouble-shooting all add steps and complexity to acquisition and delivery processes.
- ▶ ***New entrants and changing roles have re-fragmented the market.*** As recently as five years ago, the book market was relatively stable. In order to achieve and maintain workflow efficiencies, most libraries had consolidated their business with fewer suppliers, enabling automation and third-party services to have maximum effect. As e-book aggregators entered the market, some portion of monographs money was shifted to them. As long as e-books were sold via packages or on subscription, this had minimal effect on workflows. However, as libraries began to select individual e-book titles, it became necessary to coordinate that activity with print book purchasing. This need for coordination interrupts mainstream processes and erodes some of the benefits of consolidation. For libraries that utilize multiple e-book providers, or purchase some e-books directly from publishers, transactions and business relationships become further fragmented. While this may foster competition, it also introduces complexity, uncertainty, and inefficiency. This fragmentation also affects workflows, potentially reducing the number of titles delivered automatically on approval, and re-creating the need for title-by-title selection.
- ▶ ***Metadata management will become multi-dimensional.*** Many libraries report significant uptake in e-book usage when bibliographic records are added to the catalog. While this avenue of discovery via institutional OPACs remains important, overall information-seeking trends suggest that as few as 2% of undergraduates begin their searches at library Web sites. Electronic book content will more often be discovered through inclusion in course management systems such as Blackboard, through link resolvers, subject lists, and especially through full-text searching. While library catalogs and bibliographic data continue to be needed, libraries and vendors must also attend creatively to these other, equally effective

discovery pathways. Authentication support, proxy prefixes, knowledgebase updates to support link resolution, administrative metadata for licensing and trouble-shooting, and rights information are just a few examples of the extended metadata that vendors are asked to provide and manage in a growing e-book environment.

- ▶ ***Usage data will increasingly drive purchases and renewals.*** In the past, libraries have paid scant attention to the return on investment in their print collections, in part because the tools for such analysis are not fully developed. Although problems remain, usage statistics for electronic materials are generally easier to capture and compare, and vendors can play an important role in those processes. As e-books add to the share of library budgets dedicated to e-resources, and as prices inexorably rise, usage data will play a crucial role in purchase and retention decisions. Vendors who can assist with data compilation and analysis will be especially welcome.
- ▶ ***Consolidation of book and journal purchasing will become more attractive.*** Once text-based content is digitized, format boundaries begin to blur. How different, fundamentally, is an article in a journal from a chapter in a book? While significant editorial differences do remain, licensing, purchasing, discovery and access are much more similar. Other forms of digital content, such as streaming video or digital music scores, also exhibit similarities. A supplier that can support both books and journals, in both print and digital form, perpetuates the consolidation that creates and sustains efficiencies in transactions, customer service, and automated support.

These factors suggest how complex and fluid the market has become, and as a result suggest some of those “new places in the natural economy” that both old and new inhabitants will be struggling for. They also suggest characteristics that will define the successful e-book provider: a new blend of expertise that draws on a combination of experience with print books, electronic resources, both subscription-based and one-time purchasing transactions, and a highly-developed understanding of the market in which it operates. In short, those vendors who adapt their historical strengths to emerging realities will evolve and survive into the next generation. The deeper the historical strengths and environmental awareness, the more competitive will be that vendor’s continuing position.

## Competing Species and Successful Parents

***“In nature’s limited ecology [...] survivors will tend to be those individuals with variations that are best suited to changing local environments. [...] The offspring of survivors will tend to resemble their successful parents” [9].***

***“...the library ecosystem is undergoing speciation as providers of traditional services are moving into new markets. Monograph vendors are selling eBooks and databases, serial vendors are offering license management, and libraries are hosting e-journals” [10].***

The e-book environment, then, is a crowded and dynamic place, where the Darwinian concepts of “struggle for existence” and “natural selection” seem highly relevant. The overlapping and sometimes conflicting roles of publishers, aggregators, technology providers, print book vendors, subscription agents, and knowledgebase creators are still evolving. Both old inhabitants and newcomers are seeking to secure their places, each drawing on a combination of those traits that have assured their past survival, and adaptive innovations intended to keep them viable in a competitive environment.

“Old” inhabitants include print book vendors, whose success has been built on a wide range of competencies with “books” over the years. This category also includes subscription agents (somewhat surprising in a non-journal space), who have already adapted to the transition from print to digital format for journals – and as a result have well-developed “electronic” capabilities, as well as experience dealing with a hybrid print/electronic market. Subscription agents, not surprisingly, are adept at managing subscription-based resources. Since some e-books are sold on a subscription basis, agents have had early and formative experience with them. Publishers represent another species of an old inhabitant, vying with renewed energy for a direct relationship with libraries and even end users. As electronic versions of their products become dominant, many are attempting to reinvent their distribution path with much less reliance on intermediaries.

Several “new” species have also emerged. E-book aggregators entered the fray with proprietary technology platforms and a plethora of new business models, unencumbered by what one market participant called the “historical baggage” of being a print bookseller [11]. Over the past decade, several aggregators have become well established, and continue to forge alliances with the older species. While these arrangements help both partners to adapt to the hybrid print/electronic environment, they can be confusing, and ultimately will require further refinement. Another recent arrival is the e-resource access and management provider, which, while not directly selling content, provides an integrated view of e-books and e-journals, and a mechanism for tracking them by means of extensive knowledgebases. With e-journals, this proved one of the most important adaptations of all, and may also confer advantage in the e-book market. Finally, Google Book Search, Hathi Trust, Europeana, and the Internet Archive represent a different order of magnitude of e-book aggregation, supplemented by full-text indexing.

Each of these half-dozen species has one or more traits that may prove viable in this environment. For instance, to the degree that e-books are seen as “books”, the competencies of print book vendors (approval plan methodology, publisher relations, new title announcement systems, etc.) confer a competitive advantage. To the degree that the e-book’s “electronic” nature dominates, the skills and experience of subscription agents, who have already mastered licensing, access, and trouble-shooting skills, and who have already weathered the transition from print to electronic journals, offer an edge. To the degree that e-books are viewed as a hybrid creature, a history of successfully dealing with both print books and electronic journals boosts the prospects of those few firms that have done so. Finally, to the extent that e-books represent an entirely new category (new technology platforms, new business and access models, new tools, or massively-increased scale), the firms that have introduced those innovations are likely to gain favor. It has yet to be determined which concept(s) of the e-book – and therefore which variants of the supplier species – will prevail.

Successful suppliers will adapt to the hybrid environment, in which both print and electronic books will be bought as individual titles. Expectations of librarians in this regard will be shaped by historically effective book selection practices, augmented by proven competence with management of electronic resources. In this context, it may be useful to name the core competencies, respectively, of print book vendors and suppliers of electronic resources:

### ***Print Book Competencies***

Since the advent of the approval plan in the late 1970s, selection and acquisition of print books have matured to a very high level. Many libraries now receive their books completely shelf-ready. Automatic shipment, electronic selection, electronic ordering, electronic invoicing, and outsourced copy cataloging are common. Book vendor systems are often fully integrated with the library’s own automated system, and vendor capabilities such as duplication control, edition or format preference, and extended metadata are embedded into library processes. To highlight just a few examples of specialized book vendor responsibilities:

- ▶ Monitoring the publishing universe
- ▶ Specialized content and expertise
- ▶ Content description
- ▶ Interest description
- ▶ Approval plans
- ▶ New title announcements
- ▶ Edition preference
- ▶ Duplication control
- ▶ Web-based title database and transaction system
- ▶ Automated batch transactions
- ▶ Workflow support and ILS integration
- ▶ Bibliographic records for end-user discovery

Mastery of these competencies will be assumed of e-book sellers.

### ***Electronic Resources Competencies***

Although print book vendors may bring one set of useful skills and perspectives to the e-book business, e-books also differ from print monographs in important ways. Subscription agents, among other entities, have more than a decade of experience with e-resources, and especially with managing the transition from print to electronic for journals. These capabilities are equally vital to effective e-book services, and constitute a blend of new and adapted skills.

- ▶ Monitoring the publishing universe
- ▶ Content description
- ▶ New title/product alerts
- ▶ Support for licensing
- ▶ Administrative metadata
- ▶ Platform-neutrality or platform specialization
- ▶ Subscription billing/customized invoicing/title-by-title invoicing
- ▶ Access verification and monitoring
- ▶ Workflow support and ILS/ERMS integration
- ▶ Support for discovery (bibliographic records, knowledgebase updates)
- ▶ Trouble-shooting: technical issues, content issues, metadata issues – across multiple entities
- ▶ Compilation and analysis of usage statistics

A successful vendor of e-books will need to draw on both of these skill sets.

For those titles where the library prefers print or where print is the only version available, the “hybrid” vendor would assure automatic delivery of approval titles and regular new title announcements, accompanied by electronic invoicing, cataloging, and physical processing. For e-book titles, the hybrid vendor would provide title-level electronic invoicing and MARC records, and activation if required. MARC records would include URLs with appropriate proxy prefixes. Other forms of metadata, such as automatic knowledgebase updates, with corresponding updates of Web lists and links would be a bonus. Another variation might involve a library specifying a preference for the electronic version if it appears within three months of the print version, reverting to print if the embargo period exceeds three months. Rules-based support of preferences of this sort has always been a mainstay of vendor and agent services, and could readily be re-fitted to the hybrid print/electronic environment.

These are difficult combinations of tasks, but those vendors, who can adapt themselves to the market in this manner, drawing on pre-existing experience with both print books and electronic resources, will evolve in a direction that coincides with the market’s expectations. Other adaptations are possible, of course, working from different core strengths and historical traits. One can imagine a knowledgebase provider, for instance, building its own hosting platform in order to leverage its title-tracking advantage. Another possibility could include an e-book aggregator initiating an alliance with a print book vendor to form a comprehensive monograph vendor. Or, yet another adaptation would have full-text discovery changing the

rules fundamentally. Unique content – whether specialized by language, topic, or geography – is always an advantage, especially if the output of many publishers can be aggregated. There are many possible scenarios, and more than one will prove effective. The key lies in the willingness to adapt, and to assure that such adaptation is aligned with the changing needs of the environment.

### Adapting in the Right Direction

***“...within a confined area, with some place in its polity not so perfectly occupied as it might be, natural selection will always tend to preserve all the individuals varying in the right direction, though in different degrees, so as better to fill up the unoccupied place” [12].***

To evolve successfully, an e-book vendor’s orientation toward service, and toward understanding its customers, play key roles. It is one thing to know that a continuing transition from print to digital books is underway; it is another to understand how workflows, data flows, publisher relationships, metadata management, discovery support, profiling, and coverage of unique content must change to minimize the impact of that transition on libraries. Thus, excellent e-book service draws on competence with both print book and electronic content—but above all strives to relieve the library customer and the end user of complexity, creating a comprehensive, integrated view of the managed content. A responsive vendor’s primary goal remains the same, regardless of how the context and technical developments shift. That goal is to understand the customer, the customer’s environment, and especially the customer’s problems, and to build services that help solve those problems. Those species that best develop and execute appropriate and creative solutions equip themselves with a trait that assures viable adaptation. Their continued attention to the environment results naturally in small constant variances in the right direction.

The traits that assured viability in one environment may or may not assure viability in another, but they do provide some clues. Successful adaptations are based on combinations and variations of inherited characteristics. Those entities that have succeeded in dealing with both books and electronic journals not only have the best foundation for success, but also possess the instinctive ability to adapt in this new environment.

***“[...] the more diversified the descendants from any one species become in structure, constitution, and habits, by so much will they be better enabled to seize on many and widely diversified places in the polity of nature, and so be enabled to increase in numbers” [13].***

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