AN INVESTIGATIVE ANALYSIS OF E-BOOK ADOPTION IN THE GMIT LIBRARY, AS REFLECTIVE OF GLOBAL TRENDS

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ABSTRACT:

The history of e-book adoption is documented in the literature. Initially, a lack of e-book content was a major stumbling block, and it wasn't until 2003, when Amazon scanned 120,000 e-books, that content began to increase. Profit-making organisations, such as Amazon, introduced new business models and formats that significantly changed the market. Part of the fallout of these developments was a lack of standardisation and interoperability issues that hindered the popularity of e-books. However, gradually, more content came on stream, and new reading devices such as the Amazon Kindle and the Apple iPad acted as enablers of e-books.

The aim of this paper is to determine if the GMIT library is in line with e-book global trends, and the challenges and benefits associated with these. The research methodology consists of a triangular method of qualitative research to prove its findings, namely, a literature review, a case study and a focus group of GMIT library acquisition staff.

The findings suggest that GMIT library is in line with global trends. The ubiquity of mobile devices, new technologies and greater content have all contributed to an increase in the number of e-books worldwide. Challenges remain, particularly with regard to complex business models and formats. Conclusions are that complexity, in both the technological and business sphere, hindered the early adoption of e-books. Multiple formats and devices that do not talk to each other establish barriers to growth. Print will co-exist with e-books, as they are both used for different purposes. Recommendations suggest the removal of all complexity, with more streamlined business models standardised across the publishing industry, as well as the provision of multiple formats that can be read across all platforms and devices. From the end user perspective, the removal of restrictive Digital Rights Management (DRM) will increase e-book usage and the VAT rate should be removed in line with print books.

Keywords: *e-Book, Amazon, Mobile Devices; Publishing Industry.*

INTRODUCTION

Project Gutenberg identifies 1971 as the year of the first e-book; however, it is only in the last few years, forty years later, that e-books are finally showing a global increase in sales. Why has it taken so long? How popular are e-books? Is the recent interest in e-books reflected in GMIT library? These are the central questions which this research will investigate. The primary aims of the research are to investigate what has hindered the growth of e-books globally, and to determine if the recent global interest in e-books is reflected in GMIT library. The main objectives are to:

- Conduct a literature review with the purpose of determining obstacles to e-book growth initially and, latterly, the reasons why e-books are currently growing in popularity.
- Conduct a case study analysis of the GMIT Library, with respect to e-book usage and print usage, by means of primary research. The methods used will be a case study of e-book suppliers and a focus group of GMIT Library acquisition staff.
- Assess whether GMIT library is staying abreast of global trends, and whether it faces the same issues as other organisations worldwide.
- Compile a series of recommendations to increase the growth of e-books further.

There is a dearth of information on this research topic in the Institute of Technology sector. It is, therefore, envisaged that this investigation will go some way to filling in that gap and further inform the debate on e-books in an academic library setting, taking GMIT library as a test case.

Regarding scope and limitations, the research will focus on e-book take up generally and, more specifically, in GMIT library. Issues around business models will be included, to determine if they have an impact on the emergence and take up of e-books in the academic library setting. Discussion on different formats, new devices and new technologies will be included for the same reason. The research is limited in scope, due to time constraints and lack of resources. While it would be more beneficial to include the entire Institute of Technology sector and compare it to the University sector, it will not be possible within existing constraints to carry out that level of investigation. It would, additionally, be interesting to compare the usage of e-books between public and academic libraries, but this is outside the scope of this research assignment.

Section one of this paper presents a literature review, which examines various obstacles that have hindered the growth of e-books globally. It discusses emerging formats, lack of content, the emergence of new reading devices, e-book popularity in academic library settings, restrictive Digital Rights Management (DRM) issues and various business models and statistics indicating increases in e-book sales. This is followed by the research methodology of a case study analysis, examining a variety of business models used by GMIT library, to demonstrate the business complexities involved. These complexities will explain the slow growth of e-books. The subscription business model of Ebrary is compared to the single title purchase in perpetuity model employed by the book suppliers, Dawson's and Coutt's. The third stage in the triangular research methodology is a focus group of GMIT library acquisition staff, in order to determine the level of e-book purchases, usage trends and percentage of e-book spend in proportion to total book expenditure. Evidence from the focus group will consider whether the global growth of e-books is reflected in GMIT library. Finally, based on the conclusions drawn, the research will outline recommendations to increase the growth of e-books.

LITERATURE REVIEW

The first analysis consists of a literature review, to determine the factors that hampered the early adoption of e-books, and the current trends that have acted as an enabler. Lack of e-book content was a major stumbling block, initially, and it wasn't until 2003, when Amazon entered the fray by scanning 120,000 e-books, that content began to increase. For profit organisations, such as Amazon, introduced new business models and formats that made the market more proprietary. This led to lack of standardisation and interoperability issues that hindered the popularity of e-books. However, more content came on stream, and new reading devices, such as the Amazon Kindle and the Apple iPad acted as enablers of e-books.

The following table illustrates the evolution of e-books, as articulated by Robert Chrystal in, *The Evolution of e-books: Technology and Related Issues* (Chrystal, 2010, p. 6):

Table 1. Evolution of e-books

YEAR	MILESTONE
1971	Project Gutenberg.
1991	UNICODE (translated multilingual material).
1990s	World Wide Web.
1995	Amazon. First online bookseller.
1997	Digital Publishing.
2000	New online booksellers. Palm Digital Media.
2003	Open E-book format standard (OEB).
2003	Amazon scans 120,000 titles.
2004	$140 hard drive created with ability to store the entire collection of the Library of Congress.
2005	Google announce scanning initiative with several prestigious libraries (Harvard, Stanford, etc.).
2007	Amazon launches the Kindle e-reader.
2007-2010	New e-reader devices, with e-ink technology that mimics the reading of a print book.
2010	Launch of Apple iPad.

The table illustrates the evolution of e-books and the various developments, over the last forty years, that led to more content, more reading devices and new technologies, as well as the entry into the market of major commercial organisations, such as Amazon and Google.

Project Gutenberg was driven by altruistic motives, to provide e-books for free to the public, whereas for-profit organisations realised the potential e-books offered for making huge profits. These latter introduced their own proprietary formats to monopolise the market, but it is interesting to note that the ASCII text format chosen by Project Gutenberg remains interoperable across all devices. Later formats, notably .pdf, ePub, HTML, mobi-pocket and

Kindle, have not achieved such an extent of interoperability (Chrystal, 2010, p. 10). The following are a sample of the more popular e-readers available:

- Amazon Kindle 1
- Amazon Kindle 2 DX
- Amazon Kindle 3
- Amazon Kindle Fire
- Android Devices
- Apple iOS Devices
- Barnes & Noble Nook
- Barnes & Noble Nook Colour
- iRex iLiad
- Kobo Reader
- Sony Reader

The complexity of varying formats and lack of open standards mean that anyone purchasing a Sony Reader is unable to purchase e-books from Amazon, since the Amazon file format is proprietary. However, free software is available online that will convert file formats into compatible formats for certain devices; Calibre is one example of this type of software. Clearly, however, this is an extra step for the user and acts as an obstacle to seamless access.

Kindle and mobi-pocket are not open standards, as they are Amazon file formats designed to lock-in online sales for reading on Amazon Kindle devices. This is part of a business strategy to monopolise the market. Apple and Android devices, however, are very flexible, since they support all the above-mentioned file formats. All the devices support .pdf and ePub, with the exception of the Kindle 1, 2 & 3; however, the Kindle Fire tablet does support these, indicating Amazon's efforts to keep up-to-date with current market file formats to garner more of the market.

Chrystal rightly suggests that while the Open e-book format became the standard for e-books in 2000, with the objective of solving the compatibility issue, "the market was so proprietary by that time that many e-book sellers continued using their own formats." (Chrystal, 2010, p. 12). Amazon is a clear example of this.

Lack of content also proved to be a stumbling block. Project Gutenberg had scanned 10,000 e-books by 2003, but it wasn't until Amazon entered the fray in the same year, scanning 120,000

titles, "which led to the launch of the Amazon Kindle e-book reader in 2007, giving users access to 80,000 e-books on the Amazon.com website," (Chrystal, 2010, p. 12) that the market finally started to provide the content that would lead to the increasing popularity of e-books. "The International Digital Publishing Forum reported that sales of e-books in America increased from 1.5 million dollars in 2002 to 55 million dollars in 2009" (Gibson and Gibb, 2011, p. 303). By 2010, "Amazon claimed to have sold 143 e-books for every hardback book over the preceding three months, and 180 e-books for every 100 hardbacks in the previous four weeks" (Gibson and Gibb, 2011, p. 304). Clearly, the market is turning, and the evidence suggests that e-books are displaying a surge in the market, globally.

Between 2007 and 2010, with the emergence of new e-readers utilising e-ink technology, the popularity of e-books further increased as they provided a near print reading experience. Glare was eliminated, the devices became lightweight and the battery long-lasting. The Amazon Kindle, the Sony Reader and the Barnes & Noble Nook were the more popular e-readers created in this time period (Chrystal, 2010, p. 12). While Chrystal gives a very good account of the evolution of e-books, it is still unclear why e-books have been slow to dominate. A Pricewaterhouse Coopers and Cisco report greatly supplements the data on global statistics. In 2010, Apple launched the iPad with the ability to download a free reading app, iBooks. Within 80 days of launch, "more than 3 million iPads were sold throughout the world" (PricewaterhouseCoopers, 2010, p. 10)

The report by Cisco into mobile traffic indicates that "global mobile data traffic grew by 70% in 2012" (Cisco, 2013, p. 1). In addition, it pointed out that, "[t]he number of mobile connected devices [would] exceed the world's population in 2013," and that "tablets [would] exceed 10% of global mobile data traffic in 2015" (Cisco, 2013, p. 2). The ubiquity of mobile devices and new technologies are powerful drivers for e-books.

The combined increase in content and increase in e-readers, tablets and mobile devices are driving the demand for e-books. E-readers often now come bundled with wi-fi and 3G, making the purchase of e-books more seamless.

> According to Amazon's own information, the company now has more than 725,000 eBooks in its proprietary AZW format … Barnes & Noble, has more than 1.2 million eBooks…[T]he Kindle offers more than 320,000 books for readers in the UK alone and more than 1 million free books are available in English via Google Books (Pricewaterhouse Coopers, 2010, p. 8).

In 2009, "people spent US$108 billion on books" (Pricewaterhouse Coopers, 2010, p. 4). In America alone, eBook sales:

> [A]mounted to about €400 million, or US$550 million, in 2009, which accounted for approximately 3% of the mass market. For the first time in its history, it (Amazon) had sold more eBooks than hardcovers, despite rising sales of printed books …The eBook market got a bigger boost with the iPad, which was used for downloading 5 million eBooks (including free eBooks) from Apple's store in the two months following the market launch (Pricewaterhouse Coopers, 2010, p. 10).

By their nature, Apple products attract a lot of popularity, which leads to increased sales. This, in turn, leads to increased sales of e-books and, therefore, acts as an enabler to the popularity of e-books. It is significant that iPads and mobile phones are being used for reading books but still have the glare issues that have been resolved on e-readers such as the Kindle and the Nook.

While Chrystal (2010, pp. 14-17) provides very convincing evidence of the obstacles of e-books and PricewaterhouseCoopers (2010, pp 8-9) provides concrete figures for the increase in sales of e-books globally, more evidence is required in order to investigate the current situation in the context of an academic library. In addition, Chrystal's assertion that print is the preferred format is questionable as the sample chosen is much too small, consisting of twenty-five library employees. More comprehensive and convincing evidence is required, coupled with the reality that content for academic libraries is more specialised and, therefore, requires more evidence from an academic setting.

The Joint Information Systems Committee's (JISC) two surveys in 2008 and 2009, on the other hand, elicited 52,000 responses from every major university in the UK. The aim of the project was to make available thirty-six course e-textbooks to students studying business and management, media studies, engineering and medicine, in order to assess their use. One hundred and twenty seven universities took part, and the e-textbooks were made available to the universities free of charge. Information gathering consisted of surveys, focus groups, deep-log analysis and library circulation data. The project was called *JISC National e-books Observatory Project: Key Findings and Recommendations* (JISC, 2009).

The 2009 survey "revealed that a clear majority, 64.6% of university students and their teachers (combined) told us that they are now using e-books, whether supplied by a library, obtained from the open web, or purchased, to support their work or study of for leisure purposes" (JISC, 2009, p. 13). Usage of e-books between 2008 and 2009 increased by 8%.

In contrast to Chrystal's proposition, that print is the preferred option, the JISC report found that e-books are complementary to print books. One particular format is not the preferred option, and they are used for different purposes. Print books are used for more in-depth and linear reading, the analysis suggests, and,

> [S]tudents and teachers consume e-books in small chunks: for grazing and extracting information rather than for lengthy reading. Only 5% spent less than five minutes viewing a page and 85% spent less than a minute … [A] large amount of power browsing and flicking is taking place … Users prefer to print out material for later reading and note taking on paper (JISC, 2009, p. 19).

It is argued that "as such they are not a direct substitute for the extended reading opportunities that hard copy still affords" (JISC, 2009, p. 32). The evidence is more convincing than Chrystal's because the sample is extensive and the level of information gathering and analysis is more comprehensive: "The exercise generated 52,154 usable responses, making it almost certainly the largest survey into e-book use, attitudes and behaviour ever conducted … [W]e can be pretty sure that the findings reported may be generalised across the whole UK higher education sector" (JISC, 2009, p. 50).

Digital Rights Management (DRM) is perceived by the users to be very prohibitive and they want it to be removed (JISC, 2009, p. 24). The key advantages of e-books are remote access anytime, anywhere, searchability, portability and concurrent usage. E-books cannot be stolen or damaged. Peaks and troughs of usage are more prevalent in an academic setting and high demand material is required for short periods of time, to correspond to the academic year.

From a library management perspective, findings from the report indicate that "librarians regularly voice concern that the bewildering variety of licensing and business models is time consuming and not attuned to the needs of their users" (JISC, 2009, p. 28). Course e-textbooks are expensive, and continuity of access is not guaranteed. Discovery and access is cumbersome and "there is a bewildering variety of e-content, and a proliferation of ways to get it. Users don't know how to get what they want" (JISC, 2009, p. 30). Library staff reiterated the dissatisfaction with DRM.

While the JISC report is very comprehensive, from a user perspective, it does touch on the obstacles that academic libraries face in the adoption of e-books, notably DRM, a multiplicity of business and licensing models, complicated discovery platforms and expensive e-textbooks. The study, in addition, is confined to the UK and, therefore, an examination of the Irish Higher Education landscape in necessary to probe the level of e-book usage in Ireland.

Maud Conry's *E-book Uptake in Academic Libraries in Ireland – An Overview – Survey Report* (2010) proves a very timely resource. It provides a picture of e-book penetration in Irish University libraries, as well as Queens University library, Belfast and the University of Ulster libraries. The response to the online survey was 85%. Eleven academic libraries in Ireland replied.

Findings from the survey indicate that e-books make up to less than 10% of the library collection and less than 10% of the total book expenditure. They have a preference for the purchase of single e-book titles and do not add course e-textbooks to their collections, due to a lack of content available in this area. The reasons put forward for low e-book penetration are complex business models and licensing, and multiple platforms and usage restrictions (Conry, 2010, p. 7). This is in line with the JISC report. While this report gives an overview of e-books in the academic libraries of the universities of Ireland, it ignores a very large part of the Irish Higher Educational landscape, namely, the Institutes of Technology. It also neglects to differentiate between the various business models or explain, in detail, the intricacies of each model available.

These business models that are repeatedly mentioned are articulated very comprehensively in Sue Polanka's, *Purchasing e-books in Libraries: A Maze of Opportunities and Challenges* (Polanka, 2011). It proves, beyond doubt, that complex business models and licensing are hampering the take up of e-books generally. This article underpins the research under investigation by detailing "the ownership and lease models of e-books … purchasing from aggregators, publishers, and wholesalers … [and] the benefits and challenges of consortial purchasing" (Conry, 2010, p. 1). As distinct from print books, e-books are subject to licence agreements, which vary considerably between vendors. Subscription-based models provide access to a large collection of e-books, but these are subject to agreements with publishers, and titles can change over the course of the subscription. Single title purchases are available for purchase in perpetuity. The price is slightly more expensive than the print book and may contain an access fee. Short term loans are available for peak season demands. Each model brings its own intricacies.

Mincic-Obradovic's book, *E-books in Academic Libraries* (Mincic-Obradovic, 2011) gives a very comprehensive overview of e-books in academic libraries from a librarian's perspective, with particular reference to the University of Auckland library. The findings from major e-book surveys are mentioned and much of the discussion centres on the overall management of e-

books in an academic library setting. A particular feature of e-book usage in academic libraries is that "usage of these collections correlates with the academic year and that they are more heavily used when assignments are due" (Mincic-Obradovic, 2011, p.148). This correlates with findings from the JISC report in the UK.

Finally, the *2011 Global Student e-book Survey* by Ebrary provides a comparison with an earlier survey conducted by them in 2008, "about student use of electronic and print resources – perceived strengths and weaknesses as well as preferences and attitudes about them" (McKiel, 2011, p.3). It is interesting to note the increase in the provision of e-books by 2% in those intervening years, giving further credence to the general increase in library e-book provision (McKiel, 2011, p.3).

The literature review reveals an upward trend in e-book interest but judging by the overall percentage increase, e-books remain very much a niche market. If that is the global trend, is this reflected in GMIT library? This question is to the fore in the next stage of research.

RESEARCH METHODOLOGY

The purpose and aim of this section is the examination of a variety of business models used by GMIT library, in order to demonstrate the business complexities involved in e-book purchasing. These complexities hinder the growth of e-books, as highlighted in the literature review. Here, the subscription model of Ebrary is compared to the single title purchase in perpetuity model employed by the book suppliers, Dawson's and Coutt's. The advantages and disadvantages of each model are discussed.

The methods employed to garner the required information in this research consisted of a case study analysis of three e-book suppliers used by GMIT library, Ebrary, Dawson's and Coutt's. A focus group, consisting of three members of the library acquisition staff, was also convened to determine the number of e-books subscribed to or purchased, and the percentage expenditure of e-books relative to the total book expenditure of the library. Figures and statistics provided by the focus group regarding library expenditure were collated from the library management system, Millennium, and the e-book usage statistics were provided by suppliers' counter statistics.

The focus group were asked a series of semi-structured questions in relation to the type of suppliers used by GMIT library, the number of e-books purchased, the business models

employed and the usage of e-books from date of purchase. The researcher recorded the session and later transcribed the answers to the questions. The objective of the focus group was to provide a comparative analysis of the various business models employed by GMIT Library and to determine the advantages and disadvantages of each. The following business models were discussed:

- Safari business model
- Ebrary subscription model
- Dawson's single title purchase model
- Coutt's single title purchase model
- Patron Driven Access (PDA)
- Rental model

Safari Business Model

E-books were originally purchased in GMIT library in the Castlebar library in 2006 to supplement the computing collection, due to the cancellation of computing journals. E-books were purchased from the supplier Safari. The Dublin Road library followed suit in 2010. The Safari business model proved to be very restrictive from a content and user point of view. E-books are only available for business and computing disciplines and, due to price restrictions, only one hundred slots were purchased with three user licences. While Safari provided an option to swap e-books with low usage, the disadvantages related to very rigid restrictions of use. When lecturers were trying to use an e-book in class only three users could access the e-book at any one time, and if another user outside of the classroom was accessing the same e-book at the same time it would not be available. This business model did not suit GMIT's needs.

Ebrary Subscription Model

In 2010, GMIT purchased the Academic Complete Collection from Ebrary on a subscription basis. An entirely different business model, this offers simultaneous multi-user access to a collection of 82,865 e-books, covering all subject areas. This model offers GMIT a licence to access the collection, but it does not confer ownership of the collection to GMIT and access is only permitted on payment of an annual subscription. The disadvantage of this model means that if the budget is significantly reduced and GMIT can no longer subscribe to the Academic Complete Collection, access will cease and there will be no access to what the library had previously subscribed to. In addition, the collection consists of e-books from many publishers and each publisher has different terms and conditions. Some publishers may only allow access

to certain e-books for a certain length of time, which means the collection can change without due notice to the library. A lecturer who chooses a reading list from the e-book collection may find some titles removed, leading to gaps in core or recommended reading. On the other hand, the subscription model goes a long way to supplementing the print collection, and offers a vast array of e-books on all topics. The cost of the subscription is far less than what it would cost to purchase the equivalent in print format, and e-books are available on a 24/7 basis via remote access. Ebrary is also part of a consortial deal between a number of the Institutes of Technology (IOT) libraries, ensuring the overall annual subscription price has been discounted by a certain percentage. The collection is also accessible by all the campuses in the Institute, in contrast to Safari which restricted access to the subscribing campus only.

Dawson's Single Title e-books in Perpetuity Model

While Ebrary is proving to be increasing in usage, as per table two, it was decided in 2012 that GMIT adopt another business model to compensate for the disadvantages of Ebrary, as previously mentioned. A new supplier, Dawson's, was sourced and single title e-books were purchased in perpetuity. To date, one hundred and seven e-books have been purchased. The cost of a single e-book is equivalent to the hardback version of a print book with an added charge of 12% access fee on top of 23% vat. There are no annual platform charges and usage is accumulated by way of credits. Each e-book is permitted three hundred and twenty-five credits per annum. One credit equals twenty four hour access per user. If an e-book reaches its maximum it will reset to the same number of credits after twelve months at no extra cost. It is envisaged that the number of credits will not exceed the maximum on a yearly basis in GMIT library. To date that has been the case.

The advantage of this model is that e-books are purchased in perpetuity, and GMIT owns the e-book, in contrast to the subscription model. Books are chosen by lecturers for their programmes, so the e-books are directly targeted to their users. The e-books are also available for download to multiple devices. The disadvantage relates to the price of the e-book, as the access fee adds to the price; on the other hand, however, access is on a 24/7 basis. Once the e-book is purchased, it incurs no further charge, in contrast to Ebrary where the subscription amount increases each year and is on-going.

Coutt's Single Title e-books in Perpetuity Model

Not all single title e-books requested are available from Dawson's, and so GMIT library also purchases e-books from Coutt's. As Coutt's are a competing supplier, their business model is

different again. In addition to the price of the e-book, Coutt's charge an annual platform fee plus a download fee to offer users the option to download e-books to their devices. Not all titles are available for download as they are subject to restrictions from certain publishers, and some titles may be single-user only. Of those that can be downloaded, this is only to a device that supports .pdf, which now includes some versions of the Kindle. A user must first install Adobe Digital Editions to their device, in order to view and read the downloaded e-book. This is freely available online. Downloadable e-books are usually multi-user, which means two copies can be downloaded simultaneously, while another copy remains available online. If a third user wishes to download that, they have to wait until one of the other copies reaches the expiry of the loan period. Holds can be placed on e-books that are on loan. iOS devices are also supported and users must download a reading app from iTunes to read the e-book. BlueFire reader is one of the more popular readers for this purpose.

E-books are subject to restrictions by Digital Rights Management (DRM), to protect the copyright owners and the content is encrypted to prevent the unauthorised use of the e-book. Readers have to be installed to read the e-book and this is the reason why suppliers can only provide access to e-books in this way. For the user, it is another obstacle to access that adds to the complexity of the e-book medium. Coutt's have also recently introduced a credit system, similar to Dawson's. Twenty e-books have been purchased from Coutt's to date. The number of pages viewed total 1,043 up to 17th April, 2013.

Patron Driven Acquisition (PDA) Model

Both suppliers provide Patron Driven Acquisition (PDA) where users trigger a purchase of an e-book subject to agreed parameters between the supplier and the library. For example, the library may decide to allocate a small percentage of the budget towards PDA, and once the budget is depleted no further e-books can be purchased via PDA. These parameters are subject to change between the supplier and the library. GMIT library do not currently subscribe to this model, but plans are afoot to pilot this model on a small scale, to evaluate the feasibility of this method of purchase.

Rental Model

A rental model is also provided by both suppliers, whereby e-books are rented by the library for a short length of time, in order to cater for periods of high usage and to supply more specialised material at certain times of the year. Dawson's provides a number of choices, to trigger a rental

e-book. As the evidence from the case study demonstrates, each supplier offers different business models and this greatly adds to the complexity of purchasing or accessing e-books. Libraries have to spend a greater proportion of their time evaluating each model to suit the needs of the library. Invoicing, payments and administration are further complicated as a result. The end user is affected by DRM, and extra steps are involved in downloading e-books to mobile devices. E-books do not provide seamless access in this way, and users demand this type of service. This in-depth analysis correlates with the findings of the 2009 JISC report.

Comparative Analysis

The following table (Table 2) compares the business models of each supplier that GMIT Library deals with and provides a summary of the previous discussion. Each supplier offers different models with very different pricing costs leading to increasing complexity for library managers when deciding on a model that best suits their needs. A standardised model would make the process more streamlined and provide a more uninform experience for the user.

Table 2. E-book Supplier Comparative Analysis

Suppliers	Subscription	Single Title	Multi-user	PDA	Rental	Platform Fee	Download Fee	Access Fee	Credits
Safari	Yes	No	No	No	No	No	No	No	No
Ebrary	Yes	No	Yes	No	No	No	No	No	No
Dawson's	No	Yes	Yes	Yes	Yes	No	No	Yes	Yes
Coutt's	No	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes

Focus Group Analysis

The focus group were asked a series of questions comparing the expenditure on e-books to print books over the previous three years and the percentage of e-books relative to the percentage of print books. These figures were obtained from the library management system, Millennium. The usage figures for e-books were obtained from the counter statistics provided by the e-book suppliers. The analysis of the statistics provides evidence that print purchasing declined slightly and this correlated with the increase in e-book purchase, suggesting a growing popularity in e-books in GMIT library, in tandem with global trends.

Print Versus e-books in GMIT Library

Findings from the focus group indicate that spending on print books declined by 13.94% between 2010 and 2011 and declined again, by 2.85%, between 2011 and 2012, making a total decline of 16.40% in two years. In contrast, spending on e-books increased by 257%, if the subscription model and the single title purchase model are both combined. Put another way, in 2010 the percentage of e-books purchased was 7.34% of print books, 19.71% of print books in 2011 and 31.39% of print books in 2012. However, if only considering the single title purchase model, e-books make up .12% of the library collection and 10% of the total book expenditure. If the subscription model and the single title model are combined, e-books make up to 78.5% of the total book collection. The research seeks to discover whether GMIT library is in line with global trends, so the single title model is the model that must be used for comparison, since the purchasing model is similar. The figures prove that e-books are still a niche market in GMIT library, similar to global trends, and so reflect a modest paradigm shift.

If circulation data for print books for the same period for the Galway campus alone is examined, it is interesting to note a slight dip in transactions, as per the following figure in line with the reduction on spend on print material:
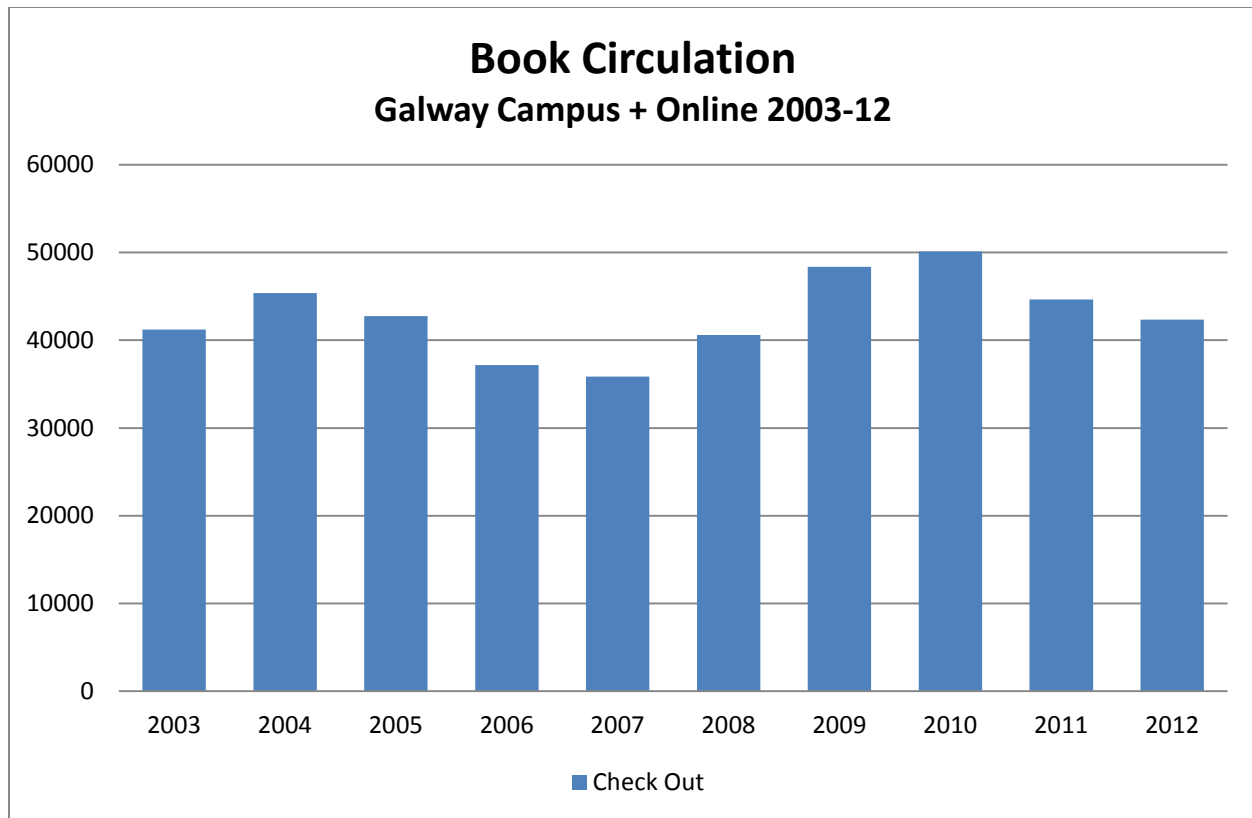
Figure 1. Book Circulation

E-book Usage Statistics

Based on usage statistics for Ebrary, the following table illustrates the increase in usage over a two year period:

Table 3. Ebrary Usage Statistics

Year	Pages Viewed	Pages Copied	Pages Printed	User Sessions
2011	129,277	2,238	3,705	8,176
2012	203,144	2,003	4,479	12,898

Usage of single title e-books demonstrate high usage, as illustrated by the following table for Dawson's, and based on statistics from September 2012 to the April 2013:

Table 4. Dawson's Usage Statistics

Supplier	No. of e-books	Pages Accessed	No. of Times Downloaded	No. of Times Read Online
Dawson's	107	10,761	295	679

When usage trends are taken into account (as per tables two and three), and the circulation data for print material, the combined result proves that GMIT library is showing a modest paradigm shift to e-books, in line with global trends. Figure 1, on book circulation, demonstrates a dip in print book circulation in 2011 and again in 2012.

CONCLUSIONS & RECOMMENDATIONS

The hindrance to the early adoption of e-books is largely attributed to complexity both in the technological and business spheres. Multiple formats and devices that present compatibility issues establish barriers to adoption. The literature review proves that creating standard formats and replicating the reading experience of a print book will lead to an increase in usage. The e-book has not yet replaced the print book, and the literature review suggests that print books and e-books are complementary to each other. Each format serves a different purpose. Print is read in a linear fashion and in an in-depth manner, whereas e-books are used for short snippets of information, in much shorter reading sessions. In the business sphere, authors have become more fearful of the potential for piracy that electronic formats present. Publishers have devised very restrictive access mechanisms for end users, to protect the rights of the copyright owner and also to protect revenue streams. Publishers fear for the profits generated by their print material. E-books present a threat to this revenue stream. In the midst of all this complexity, GMIT library has proven itself to be proactive in acquiring e-books, using two very different business models, aligning with global trends. Plans are also under way to pilot shorter rentals of e-books to cater for sporadic high peak demands during the academic year, as a complement to inter-library loans.

Findings from the investigation recommend more streamlined business models, which are standardised across the publishing industry, to cater for the needs of end users. Removing

complexity from this area will lead to more purchases of e-books. From the end user perspective, and to increase the usage of e-books, the research recommends the easing of the digital rights management element of e-books. DRM is a barrier to use and end users are frequently frustrated by restrictions to download, print and copy. E-books which are easily accessible and which do not require complicated reading applications to access the material will drive usage of e-books even further. Devices that link to online bookstores are essential to ensure a seamless service to the user. Complexity leads to frustration. End users expect instant and seamless services at the touch of a button. The VAT rate should be removed from e-books, since print books are zero-rated. They are all books after all. This will reduce the price, and lower prices generate greater sales.

Publishers need to adapt to change and must provide material in multiple formats across all platforms and devices. Print will continue to co-exist with e-books because both formats are complementary to each other. However, the nature of print material may change. Print on demand will become a trend, since the need for large print runs will be diminished. This will realise a saving for physical storage and printing. The revenue accumulated can be directed to investment in electronic technologies and more streamlined business models.

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