

SHARED INTELLIGENCE

DIGITAL LEADERSHIP SKILLS

HORIZON SCANNING REPORT TO THE SOCIETY OF
CHIEF LIBRARIANS



July 2014

1. Digital trends for the library sector

1.1 There is a wealth of existing commentary on emerging and future digital trends. This report explores a number of digital trends which we suggest are relevant to the operation and leadership of public libraries over the next five to ten years.

1.2 In preparing this review, we are conscious that there are a large number of issues that could potentially be covered in this paper, not all of which might have a particular relevance to libraries. We have therefore tried to 'cast the net wide', looking at a broad range of trends before 'drawing the net in' around those trends which are most likely to have an impact on libraries specifically.

Types of trend

1.3 In our view there are two main kinds of 'digital' trends:

- Firstly, there are **technological trends**, meaning improvements and developments in underlying digital technology.
- Secondly, there are a range of **other social, cultural and political trends** which affect the demand for and uptake of digital technology.

1.4 The main driver of **technological trends** is the ongoing effect of Moore's Law (which is a trend not a true physical law) – which predicts a doubling of achievable computer processing power every 18 months to two years – and the impact this is having on related software and hardware. This trend has been observed over the last fifty years¹, and has been accompanied by a pattern of decreasing hardware costs. It has been widely suggested that Moore's Law might finally reach some physical limits around 2020², but even if the physical density of chip transistors stops increasing according to Moore's Law, significant improvements in speed will still be possible by improvements in programming³.

1.5 Therefore over the five to ten year timescale we are examining, the effect of Moore's Law is likely to continue to bring about exponential improvement in digital technologies. In other words, in five years we would expect average 'digital technology' to be about 8 times better / faster / cheaper, and in ten years we could expect an average improvement of 64 times (three further doublings) if this trend were to continue.

¹ http://en.wikipedia.org/wiki/Moore's_Law

² For example Intel's former chief architect Bob Colbert has speculated that Moore's Law could finish by 2020 or 2022: <http://www.extremetech.com/computing/165331-intels-former-chief-architect-moores-law-will-be-dead-within-a-decade>

³ <http://computer.howstuffworks.com/moores-law-outdated.htm>

- 1.6 This immense **speed of improvement** in core computing technologies, **coupled with human innovation to exploit it**, will be a major driver of change, and have far-reaching implications for consumer software and hardware. It is also relatively certain, at least over a period of the next five to ten years.
- 1.7 **Other social, cultural and political trends** depend on more complex interactions between individuals, groups and organisations. They are limited in their speed of change by the effects of inertia, investment times and other time lags. These kinds of trends are therefore harder to predict and, as a result, are subject to more uncertainty. An example might be the ongoing response of the publishing industry to the twin challenges of e-books and the power of Amazon as a purchaser. How this market dynamic plays out will depend upon whether publishers can maintain their gatekeeper role as arbiters of quality writing or whether new technologies and approaches will make their role here redundant.
- 1.8 Clearly, most trends encompass technological and societal aspects and so have at least some measure of uncertainty.

Understanding the scale of change

- 1.9 It is important to recognise that even though the timeframe for this review is five to ten years, within that time there will be significant new developments in digital technology. There are lots of examples of rapid change over the past few decades in the realm of digital technology, but two particularly powerful examples are:
- In 2007 Apple released the first iPhone. As of early 2014, Apple has sold 500m iPhones⁴ and there are now approximately 1.5bn smartphones (made by Apple and others) in the world⁵. Within just seven years the iPhone and the other smartphones which emulated it, have made an enormous impact globally, in how we communicate, how we access information, as well as on jobs, manufacturing and even on politics and civil society.
 - In 2004, the Defense Advanced Research Projects Agency (DARPA), the US government agency responsible for developing new technologies for the US military, ran a competition with a \$1m prize for the first driverless car to finish a 150 mile race through the Mojave Desert⁶. None of the entrants finished the race, and the best effort covered only 7.4 miles before getting stuck on rock (the race ended with no winner declared). However, the technology progressed with such speed that in early 2014 Google was able to announce that its autonomous vehicles had clocked 700,000 miles without an

⁴ <http://www.forbes.com/sites/markkrogowsky/2014/03/25/without-much-fanfare-apple-has-sold-its-500-millionth-iphone/>

⁵ <http://www.emarketer.com/Article/Smartphone-Users-Worldwide-Will-Total-175-Billion-2014/1010536>

⁶ Ibid – pgs. 18-19

accident⁷. In late May 2014 Google unveiled its own prototype car⁸ and Nissan has committed to releasing a commercial self-driving car by 2020⁹.

1.10 There are many other examples, but these illustrate the dramatic extent to which technology has developed over the past five to ten years. Therefore it is vital for library leaders to assume that rapid technological change will be the certain backdrop to the period in question, both in terms of technology itself and in how individuals utilise technology.

Key themes in digital trends for libraries

1.11 The analysis of trends that follows organises the observed trends into four theme areas:

- Internet technologies and access
- Digital software and hardware
- E-books
- Wider cultural and societal trends

1.12 These themes are not intended to be mutually exclusive and there is clearly a lot of interaction between the different categories. Nonetheless, organising observed trends into these categories helps us to understand the broader changes brought about by digital trends and development.

Internet technologies and access

1.13 Average internet speeds in the UK were 14.7 megabits per second (Mbit/s) as of May 2013¹⁰. The graph below illustrates that average UK fixed line broadband speeds have more than tripled over the past five years, with average speeds increasing at an accelerating rate.

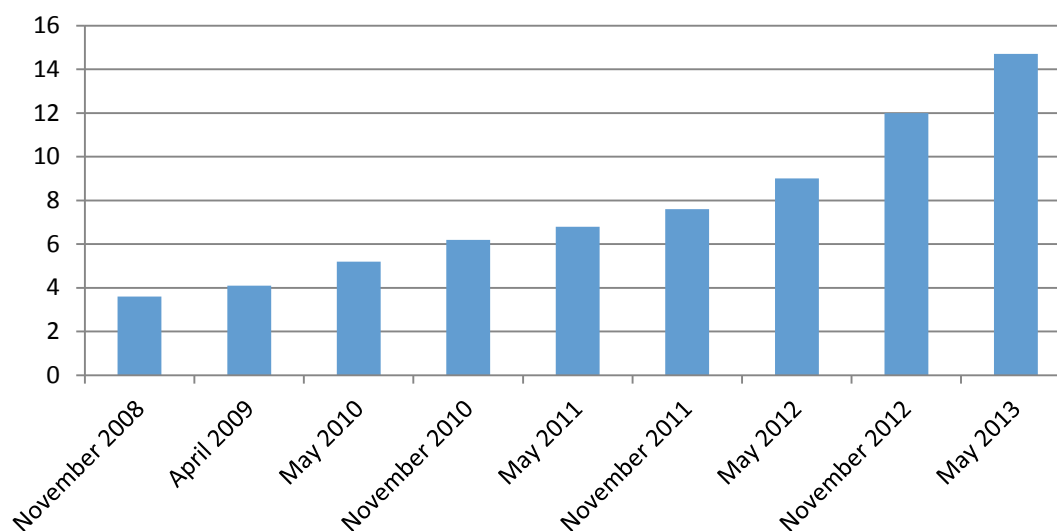
⁷ <http://www.wired.com/?p=960361>

⁸ <http://www.wired.com/?p=960361>

⁹ <http://www.bloomberg.com/news/2013-08-27/nissan-sets-goal-of-bringing-first-self-driving-cars-by-2020.html>

¹⁰ Ofcom (2013) UK fixed-line broadband performance, May 2013 - The performance of fixed-line broadband provided to UK residential consumers

Average Speed of Consumer Broadband (Mbit/s) 2008 - 2013



Source: Ofcom (2013)¹¹

- 1.14 We expect that both **demand for and supply of improved internet speeds will continue to increase over the next five to ten years**. Supply and demand are closely linked, with improved speeds enabling new services which in turn drives demand for better, more stable connections.
- 1.15 Demand over the next five to ten years will be driven by a shift towards streaming music, video, games, and other software applications online which will increasingly displace physical media forms (CDs, DVDs, etc.). This trend is well established. For example, Netflix has attracted an estimated 1.5m to 2m customers since launching in the UK in early 2012¹², mirroring similar trends in other countries. Libraries have long seen declining revenues from CDs and DVDs, and whilst this will likely continue, it might well bottom out at a lower level if libraries can continue to serve a population with low or no internet access.
- 1.16 Video-calling and video conferencing will become more commonplace as will ‘telepresence’, the use of robot ‘avatars’ to enable people to work and meet others remotely. In a library context this might help staff in different libraries, or even nationally, to better exchange information and experience.
- 1.17 **Cloud computing**, the delivery of software and computing power via the internet is a particularly important example of how improved internet speeds open up new opportunities. Cisco have forecast that by 2017, two thirds of server traffic will be within the cloud, up from 39% in 2012¹³. For libraries as with other services public and private, cloud computing offers a range of cost benefits as well as a number of risks, particularly the

¹¹ <http://media.ofcom.org.uk/2013/08/07/average-uk-broadband-speed-continues-to-rise/>

¹² <http://www.theguardian.com/media/2013/aug/21/netflix-uk-subscribers-internet-video>

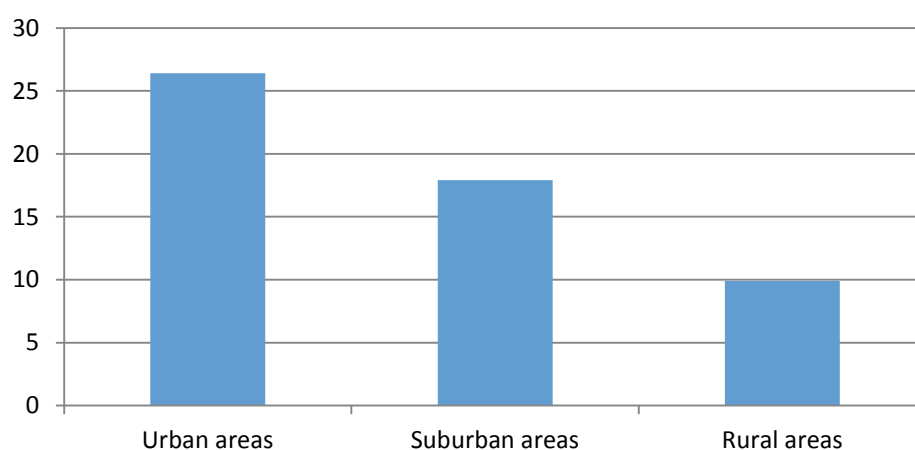
¹³ Cisco Systems (2013) Cisco Global Cloud Index: Forecast and Methodology, 2012–2017

privacy implications of putting data online, often in another country. This will be bound up with wider local authority decisions around IT systems.

1.18 Virgin Media is already delivering broadband speeds of up to 152 Mbit/s in some areas. The government's Broadband Delivery UK (BDUK) programme is aiming to ensure that everyone in the UK is able to access broadband speeds of at least 2 Mbit/s, with the aim that 95% of the UK will be able to receive far greater speeds (at least 24 Mbit/s) by 2017. However the BDUK programme has seen extensive delays since it was first announced in 2012¹⁴ and it is possible that further delays will be experienced.

1.19 It is likely that **the increase in speeds will occur at a highly unequal rate**. At present, as shown below, there is a large difference in available broadband speeds between urban and rural areas, with average speeds of 26.4 Mbit/s in urban areas and 9.9 Mbit/s in rural areas¹⁵. Very high internet speeds are typically only available in core urban areas.

**Average UK download speeds by area type (Mbit/s) -
May 2013**



Source: Ofcom (2013)¹⁶

1.20 **Mobile internet speeds can also be expected to increase significantly**. 4G rollout across the UK is already underway, with average speeds of 6 Mbit/s expected¹⁷. 5G services might be viable sometime after 2020, towards the end of the timescale we are exploring, offering significantly faster speeds. As with fixed-line broadband there is, and is likely to continue to be, a divide between urban and rural speeds. A number of innovations are currently being explored with regards to mobile internet, with Google exploring the potential use of high

¹⁴ National Audit Office (2013) The Rural Broadband Programme

¹⁵ Ofcom (2013) UK fixed-line broadband performance, May 2013 - The performance of fixed-line broadband provided to UK residential consumers

¹⁶ <http://media.ofcom.org.uk/2013/08/07/average-uk-broadband-speed-continues-to-rise/>

¹⁷ <http://consumers.ofcom.org.uk/what-is-4g/>

altitude balloons to deliver internet access to remote areas¹⁸. Both Facebook¹⁹ and DARPA²⁰ have announced programmes to provide internet access via drones. These technologies might potentially bring more reliable and faster speeds to non-urban areas.

- 1.21 Supporting the proliferation of internet access will be a range of **cheaper smartphones, tablets and 'phablets'** (hybrids devices that sit in size and performance between smartphones and tablets.) Cheap smartphones and tablets can now be purchased for as little as £30²¹, opening up mobile internet access for those on lower incomes. The performance of devices at this low price-point is likely to improve as the core smartphone and tablet technologies become more and more commoditised, though there will likely continue to be a performance gap between cheap and high end devices, limiting what users of cheaper devices are able to access.
- 1.22 In addition to devices already on the market, it is likely that new technology will enable **further devices with internet accessibility**. Already there are a number of 'smart-watches' on the market and Google has made extensive headlines with its Google Glass technology.
- 1.23 As we move towards the end of our time horizon, many commentators anticipate that **the internet will become increasingly ubiquitous and 'always on.'** Joe Touch, director at the University of Southern California's Information Sciences Institute speculates that 'we won't think about 'going online' or 'looking on the Internet' for something — we'll just be online, and just look.'²² This is connected to the development of new devices which provide more seamless access to the internet, such as Google Glass.
- 1.24 Associated with this, cheap sensors and transmitters are predicted to enable an '**internet of things**', with objects communicating between one another to provide feedback and respond to user preferences. For example, LG have already developed fridges that can send a message to your smartphone when you are out of milk²³. In the next five to ten years it is likely that the same device will be able to order replacement food automatically from a supermarket before you run out. Similarly, an individual might be able to remotely control their home's heating, lighting, security, etc. or a firm might use the same techniques to monitor and improve the efficiency of its operations. In a library context more and more operations of the library will be recordable and measurable, and able to give feedback in real time.
- 1.25 Despite the ubiquity of these technologies, however, it is likely that **there will remain a hard-core of people who do not use the internet regularly or at all**. The latest figures show

¹⁸ <http://www.google.com/loon/>

¹⁹ <http://www.bbc.co.uk/news/technology-26784438>

²⁰ <http://www.bbc.co.uk/news/technology-27019389>

²¹ <http://www.theguardian.com/technology/2013/dec/16/datawind-ubislate-india-aakash-tablet-android>

²² Quoted in Pew Research Center (2014) Digital Life in 2025

²³ <http://www.cnet.com/uk/news/lg-smart-refrigerator-grows-a-brain/>

that almost 6.7m people in the UK (13.1% of the population) report that they have never used the internet²⁴. Over half of these people are self-assessed as disabled under the equality act, 72% are over 65, and non-users are overwhelmingly in the lower income bands if they work at all²⁵.

1.26 Whilst the number of people who have never used the internet has declined sharply over the last few years, it remains to be seen whether these numbers will stabilise at a lower number, albeit one which is still high in absolute terms, and it is not clear whether the accessibility improvements discussed above will make a genuine impact on older population cohorts that have poor internet literacy. Moreover, whilst individuals may be using the internet for the first time they will not automatically become skilled without regular use and support. Given the increasing importance of the internet as a source of information, leisure, social connection and work, it is likely that these people will become increasingly isolated from mainstream society. Library staff currently spend a large proportion of their time dealing with customers with poor computer and internet literacy and this is likely to continue.

1.27 Whilst the growth of internet technologies and access will bring many positive effects, it will place increasing requirements on organisations who manage data and who deliver services online to ensure adequate cybersecurity. For libraries, there will be a challenge to ensure that customer data is safeguarded and that library devices used to access the internet are as secure as possible.

Digital software and hardware

1.28 Supported by advances in computing technology and internet access, there will be significant changes in digital software and hardware over the next five to ten years. The main impacts for libraries will be in terms of:

- potential to improve operational efficiency
- potential to offer an improved or expanded service

1.29 As computer processing speeds increase, so does the ability of **software to assist and undertake more complex tasks**. Already computers are able to take on standardised, repetitive tasks such as writing basic news reports (e.g. sports news, stock market reports)²⁶, searching through large numbers of legal documents²⁷, and assisting with complicated tax returns that would have previously required a qualified accountant²⁸.

²⁴ ONS (2013) Internet Access Quarterly Update, Q4 2013

²⁵ Ibid

²⁶ <http://www.journalism.co.uk/news/robot-reporters-how-computers-are-writing-la-times-articles/s2/a552359/>

²⁷ http://www.nytimes.com/2011/03/05/science/05legal.html?pagewanted=all&_r=0

²⁸ Brynjolfsson, E. & McAfee, A. (2014) The Second Machine Age: Work, Progress & Prosperity in a time of Brilliant Technologies – pg. 130

- 1.30 Even some tasks which were once considered too complex to computerise due to their unstructured nature are now susceptible to computerisation. This example of self-driving cars, above, demonstrates the pace at which complex tasks can be mastered by machines and suggests that further breakthroughs will be made within the timeframe we are looking at.
- 1.31 A recent study has gone as far as to suggest that 47% of total US employment 'could be automated...over the next decade or two'²⁹, illustrating the potential for computers to undertake increasingly complex tasks. Given the similarities between the US and UK economies, we could expect a similarly high proportion of jobs to be vulnerable to automation in the UK.
- 1.32 In a library context there may be increasing scope for software / machines to undertake some library work currently carried out by humans, thus helping to either reduce costs or free up librarian time for other tasks. At the very least, it is likely that library managers in 10 years' time will be facing serious decisions as to how to make use of new robot and computer work technologies.
- 1.33 **Massively Open Online Courses (MOOCs)** and other educational software provide new opportunities for delivering learning at all levels. At present, MOOCs are still in their relative infancy, though two of the larger platforms, Coursera and EdX have already attracted 6.3m users between them³⁰. To put this in perspective, this is more than two and a half times the number of university students in the UK³¹. Whilst learners can access courses from a range of institutions for free, it is not yet possible to turn these into a recognised qualification, though progress is being made, such as Coursera's Signature Track programme³², which verifies a user's identity and enables them to be issued with certificates for courses they pass.
- 1.34 However, over the next five to ten years it is likely that MOOCs will become increasingly mainstream, as existing platforms become more mature, as employers come to better recognise the leading brands, and due to increasing demand from students facing high costs of higher education. MOOCs may also become a more established part of traditional forms of education. 'Flipping the classroom' - using video lectures to impart the basic concepts of a subject and then using classroom time for more detailed debate and discussion – is already happening³³ and likely to become more common.

²⁹ Frey, C. & Osborne, M. (2013) The Future of Employment: How Susceptible are Jobs to Computerisation – pg. 44

³⁰ <http://online.wsj.com/news/articles/SB10001424052702303759604579093400834738972?mg=reno64-wsj&url=http%3A%2F%2Fonline.wsj.com%2Farticle%2FSB10001424052702303759604579093400834738972.html>

³¹ HESA (2013) Statistical First Release 197: Table 1 - All student enrolments on HE courses by level of study, mode of study and domicile 2008/09 to 2012/13

³² <https://www.coursera.org/signature/>

³³ http://opinionator.blogs.nytimes.com/2013/10/23/in-flipped-classrooms-a-method-for-mastery/?_php=true&_type=blogs&_r=0

- 1.35 Likewise, universities are becoming more interested in using MOOCs. Indeed, many MOOCs are founded by universities. EdX is a partnership between Harvard and MIT, FutureLearn is the Open University's MOOC platform, and Yale offer access to lectures through Open Yale. How MOOCs mature over the next five to ten years will depend in a large part on how these platforms progress in the face of universities' fear of cannibalising their main on-campus offer. It is not unreasonable to imagine a much larger proportion of university degrees and similar learning being undertaken online either through MOOCs or universities' own online platforms.
- 1.36 One of the current criticisms of MOOCs is that they offer limited student-to-student and student-to-teacher interaction. It is not yet clear whether there will be an opportunity to provide a physical space to support learning via MOOCs. Whether this opportunity materialises will depend on acceptance and uptake of MOOCs increasing dramatically, such that there is local scale to make this practicable. In theory, libraries could play a role in accommodating MOOC meet-ups and study groups. In April 2014, the New York Public Library Service and Coursera announced a pilot programme to provide study groups for some Coursera courses in New York libraries³⁴. The experience of this pilot may offer some interesting insights into how libraries could support MOOCs more widely.
- 1.37 Another way in which libraries might use MOOC technology is in training and knowledge sharing. As well as offering courses, there are now several platforms which allow individuals and organisations to create their own MOOCs. MOOCs for library staff might offer a cost-effective way to provide continual training.
- 1.38 A very specific software challenge for libraries is the need to **ensure that Library Management Systems (LMSs) remain fit-for-purpose**. At present there is widespread feeling that existing LMS products are generally not good enough and do not meet the needs of customers or library services. Specifically, they do not offer an interface of a comparable quality to major websites such as Amazon, etc. that customers are familiar with.
- 1.39 The poor performance of LMSs stems partly from fragmented procurements processes, with different library authorities typically procuring systems separately, and in some cases systems are procured centrally by local authorities. Because of this fragmentation, and the specialised nature of the product, LMSs are not subject to strong competition at present. It is possible that this could change over the next five to ten years, possibly as the result of a new, more innovative entrant to the market. However, in our view the main influence on the market is likely to continue to be the buying power of libraries. If this power remains fragmented then improvement in LMSs are likely to lag behind the expectations of customers and users. Clearly, though, there is potential for libraries to work much more closely in procuring LMSs or even commissioning new products that better suit their needs. Library services might also choose to back an open-source approach. Therefore this is one area where libraries are not just subject to trends but can actively shape how the market operates and evolves.

³⁴ <http://blog.coursera.org/post/84322385012/new-learning-hubs-locations-hosted-by-the-new-york>

- 1.40 The increasing power of computers, and the shrinking in size and cost of components which enable individuals and organisations to capture data, is fuelling a revolution in so-called **Big Data**, which refers to the analysis of extremely large datasets to create value for organisations and society. For example, UPS has used Big Data techniques to craft optimal routes for its drivers which in 2012 allowed it to eliminate 206m minutes of idling time and save more than 1.5m gallons of fuel³⁵.
- 1.41 Libraries have and could develop large datasets on users, but how useful these will be depends on confidentiality issues, the merging of local datasets into a national dataset, and the extent library services continue to generate data as book borrowing decreases. The NHS's recent challenges rolling out its care.data project³⁶ illustrate the problems for public sector bodies in particular in using data in a way which customers feel comfortable with.
- 1.42 A number of **new types of hardware** provide potential opportunities for libraries. 3D printers, devices which enable users to 'print' out objects from computer files, are now available for under £500. Whilst they are still a relative curiosity in consumer markets it is quite possible that they will be mainstream within five to ten years, with a significant proportion, though maybe not a majority of homes, having access to one. A number of libraries have already experimented with 'maker' events including 3D printing, but this is still relatively rare.
- 1.43 Simple robotics kits will become more common, cheaper and easily available. Already LEGO's Mindstorm range allows young people to create a range of small programmable robots. There are also now a range of consumer DIY drone kits. Improvements in robotics technology will be matched by new improved coding platforms such as Raspberry Pi, a simple computer for young people to learn coding, and Arduino, an affordable microcontroller which makes the construction of simple machines easier.
- 1.44 There is therefore an open question for libraries about whether they want to provide access to these and other kinds of innovative hardware. If so, libraries will need to consider how to ensure that equipment remains up to date and useful for customers, and how to accommodate this new offer alongside existing services.

E-books

- 1.45 An important component of digital trends affecting libraries is of course the rise of e-books against traditional printed books. Printed books still (just about) dominate the market but the situation is changing month on month and most of the publishing industry is now gearing up for an ascendance of electronic formats on a similar scale to that seen in music and video.
- 1.46 Obtaining accurate data on e-books is notoriously difficult; this includes overall take-up of e-books, the extent people are choosing e-books in place of printed books, or choosing e-

³⁵ <http://www.bloomberg.com/news/2013-10-30/ups-uses-big-data-to-make-routes-more-efficient-save-gas.html>

³⁶ <http://www.bbc.co.uk/news/health-26239532>

books in addition to printed books. However, figures released last year showed that by 2012 around 14% of UK books sold were e-books compared to around 6% in 2011. We also know that UK households are continuing to acquire e-readers. So despite the difficulties in obtaining accurate data, it is clear that e-books are already making a significant impact on reading habits in the UK.

- 1.47 The picture regarding e-books in libraries is even more complex, and difficult to discern, but what is certain is that e-books are now just as much a disruptive force for libraries as for the publishing industry.

E-book readers

- 1.1 The UK market for digital books took off in 2009/10 following the introduction of the Amazon Kindle, which was the first e-reader device with integrated wireless access to a major online store³⁷. E-readers are now considered mass market technologies. According to Deloitte, they were present in a third of UK homes in 2013, up by 65% since 2011³⁸, and the increase in e-readers shows no signs, to date, of stopping³⁹. E-reader adopters are likely to have already been keen readers, and the devices are particularly popular among females aged 45 to 54⁴⁰.
- 1.2 This increase in device ownership partly reflects the falling price of new technology. At the time of writing, an Amazon Kindle can be purchased for less than £60 in the UK market, while other e-readers are available for closer to £30. With enhancements in screen resolution, multi-purpose tablet computers (e.g. iPads) are also increasingly being used as reading devices; although it remains to be seen if they act as a substitute or complement to e-readers, which continue to offer advantages in terms of affordability, portability and reading experience⁴¹.

E-books have made strong gains in the UK market

- 1.3 With the rapid adoption of e-readers and tablet computers, e-books have taken a significant share of the total books market in the UK. By the end of 2012, e-books made up 14.3% of the UK market, up from 5.8% in 2011⁴².

³⁷ Other developments, including increased prevalence of supporting devices (e.g. laptops and mobile devices) and changing consumer attitudes, were also factors.

³⁸ Deloitte (2013) Media Consumer Survey 2013

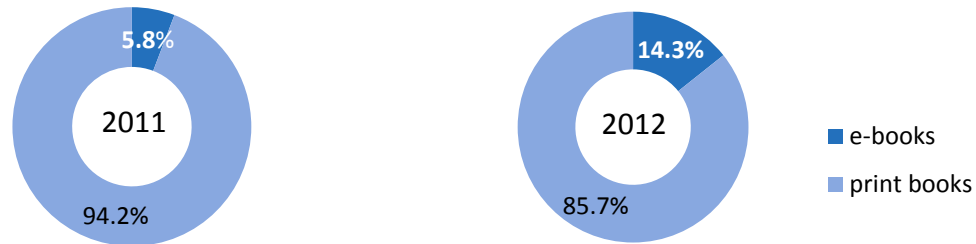
³⁹ For example, the number of Americans ages 16 and older who own either an e-reader or tablet computer increased to 43% in September 2013, up from 33% in November 2012 - Pew Research Center (2014) Pew Research Internet user Survey

⁴⁰ Ibid.

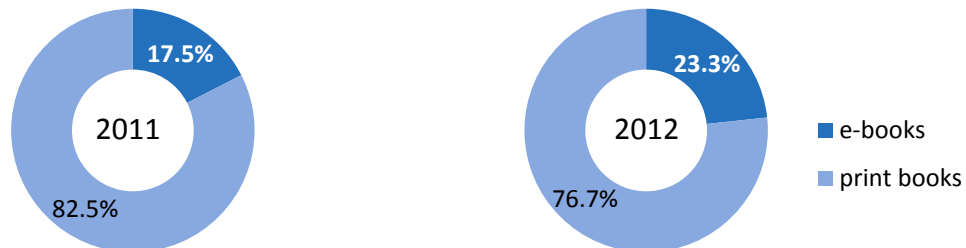
⁴¹ Deloitte (2013) Media Consumer Survey 2013

⁴² BBC (2013) E-book revolution: Breaking through in the digital age

UK market share (%)



US market share (%)



Source: <http://www.bbc.co.uk/news/business-23682885>

- 1.4 Based on trends elsewhere, it seems highly likely that e-books will account for a growing proportion of the market for books over the next five to ten years. In the US, for example, e-books already had a 23.3% market share in 2012 and some predictions suggest that globally sales of e-books will overtake sales of print books in 2014⁴³. Indeed, on Amazon.co.uk sales of e-books overtook print book sales in 2012⁴⁴.
- 1.5 Few expect printed books to disappear, and certainly not within the next five to ten years, especially as 184m of the books sold in the UK last year were in printed formats⁴⁵. For the majority of people printed books are still the preferred format. A recent survey of adults' reading habits in England found that over three-quarters of adult respondents preferred physical books, with only one in ten preferring e-books and 13% preferring a mix of both formats⁴⁶. In another survey, only 4% of UK participants said that they would *only* read from e-books/online in the future⁴⁷.

⁴³ Nielsen (2013) Understanding the E-Book Consumer

⁴⁴ <http://www.theguardian.com/books/2012/aug/06/amazon-kindle-ebook-sales-overtake-print>

⁴⁵ <http://www.bbc.co.uk/news/entertainment-arts-25624856>

⁴⁶ DJS Research (2013) Booktrust Reading Habits Survey 2013

⁴⁷ PwC (2010) Turning the Page: The Future of eBooks – note: there are obvious advantages for jointly distributing e-books and printed books, allowing users to read an electronic version of a book when travelling, whilst also having access to a printed version at home.

- 1.6 As discussed above, the barriers to internet take-up, such as lack of computer skills and equipment and network costs, will also be issues for accessing e-books; this is over and above public preference.
- 1.7 In addition, Amazon is experimenting with enabling US customers to buy cheap (or even get free) e-book versions of books they have previously purchased⁴⁸. Initiatives like this that decrease the difference between e-books and printed books may help maintain the demand for printed books over the next five to ten years.
- 1.8 However, it is important to recognise that there is evidence of a longer term shift in reading (or more accurately, *media consumption*) habits. As above, this manifests itself in terms of a shift away from printed media towards electronic formats, despite book-readers' stated preference for books.
- 1.9 If we look beyond regular book-readers there is evidence of a broader shift away from reading books (be they electronic or physical) as a form of communication, compared to other forms such as shorter written formats (news articles, blogs, and micro-blogging) or non-written forms (audio and video). For example 56% of adults in England 'think that the internet and computers will replace books in the next 20 years.'⁴⁹ This proportion rises to 64% of 18 to 30 year olds⁵⁰. Digital technology has already had a significant impact on how people are reading the news and other media. Over half of all adults (55%) in the UK used the internet to read or download the news, newspapers or magazines in 2013, compared to only 20% of adults in 2007⁵¹.
- 1.10 This chimes with the falling value of UK book sales, down 6.5% between 2012 and 2013⁵², and falling number of actual books sold, which have seen a 9.8% decline year on year⁵³. 45% of adults in England also state they prefer watching television and DVDs to reading⁵⁴.
- 1.11 Looking forward, it is clear that books (printed or electronic) will increasingly compete with other forms of media for people's time. Printed books have the virtue of being relatively cheap, portable, and easy to access. In the past this has not always been true of other media (notably broadcast television and video), but these barriers are being broken down by the proliferation of mobile devices discussed above and the ability to download and stream content remotely. Other virtues of books (this goes for printed and electronic) , like the ability to enjoy them privately in a public place, are also no longer exclusive to books but are

⁴⁸ <http://www.bbc.co.uk/news/technology-23953258>

⁴⁹ DjS Research (2013) Booktrust Reading Habits Survey 2013

⁵⁰ Ibid

⁵¹ ONS (2013) Internet Access - Households and Individuals

⁵² <http://www.bbc.co.uk/news/entertainment-arts-25624856>

⁵³ Ibid

⁵⁴ DjS Research (2013) Booktrust Reading Habits Survey 2013

shared across other media. As these other forms of media become cheaper, more portable and easier to access it is possible that books and reading in any form will attract a declining proportion of our time, even though the same technology makes it easier than ever to read.

Lending e-books

- 1.12 Unsurprisingly, given the shift towards reading e-books, there is evidence of rapidly growing demand to borrow digital books from UK public libraries. This demand is likely to increase significantly in the years ahead; however, the growing popularity of e-books, coupled with uncertainty within the publishing industry of how to protect IP and revenue, is creating a number of challenges for libraries. The dominance of the Amazon-owned “.mobi” format is also a significant issue, with Amazon so far choosing not to enter any agreements with public libraries outside of the US.
- 1.13 For these reasons SCL are conducting a national e-book lending pilot funded by the British Library to assess the “impact of e-book lending in public libraries on authors, publishers and on the library service. The pilot will report back its findings in 2015.
- 1.14 Although many libraries are already offering e-book lending on a variety of platforms the results of the pilot will hopefully provide clarity in what is currently a confusing scene.
- 1.15 At the moment, publishers selling to libraries have generally been wary of applying the same model for selling digital books as for printed books. The main issue for publishers is to have the same degree of ‘friction’ around e-books in terms of finite limits on the number of times a book can be loaned. For printed books there are several limiting factors; the physical condition of a book deteriorates the more it is borrowed, a book can obviously only be in one person’s possession at a time, and although books can be sent around the country this involves time and postage costs. For e-books none of these limits exist naturally unless they are imposed artificially.
- 1.16 The obvious concern of publishers is that this lack of ‘friction’ will make it too easy to borrow and share books for free, undermining retail sales⁵⁵. This is much the same concern as music publishers have had over streaming services like Spotify.
- 1.17 To offset this, the most common restriction that is usually applied to library lending of downloadable e-books is that there only be one reader at a time permitted to access a title; this is the solution introduced by the OverDrive e-book lending platform⁵⁶. Some publishers and distributors are also experimenting with other models, including micro-payments per individual loan, a pre-determined number of loans on a ‘volume’ and delayed release to the library market⁵⁷ (an approach used previously in the video-rental sector).
- 1.18 There is also an issue with having many local e-book lending platforms across UK public libraries. Lending taking over multiple websites is clearly costly, but the duplication of

⁵⁵ DCMS (2013) An Independent Review of E-Lending in Public Libraries in England

⁵⁶ The International Federation of Library Associations and Institutions (2013) IFLA Principles for Library eLending

⁵⁷ Ibid

lending systems also means that one of the key attractions of e-books, to instantly find and download almost any book ever written, is not there for library borrowers. Added to this, the different ways e-book lending has been integrated in individual local authority websites means that for some borrowers the experience is slick and easy, whereas for others there are so many steps and clicks as to put off all but the most tenacious borrower.

1.19 And the final challenge for libraries is again 'pace of change'; that as fast as libraries react to the current e-book landscape new e-book platforms are appearing. For example:

- Amazon, which has a 79% share of the UK e-book market, now offers low-cost book lending service for Amazon Prime members⁵⁸;
- Penguin Random House is in the process of launching 'My Independent Bookshop', a recommendation and retail platform where readers can curate, share, browse and buy books;
- In the US subscription lending services, akin to Spotify or Netflix, are emerging⁵⁹; and,
- The relative ease and low cost of e-book publishing is also allowing many more writers to self-publish their own work and attract a relatively large reader base⁶⁰.

1.20 There is also a risk that if e-book sales platforms are overpriced or poorly customer focussed, there will be a consequent rise in piracy affecting libraries and lending also⁶¹.

1.21 However, the main challenges in our view are the lack of a single online point for e-book lending (instead there are dozens of individual library sites or variable usability), and the fact that as a consequence it is impossible to search and access the complete range of e-books available in UK public libraries.

1.22 While the rise of e-books is creating a number of challenges, there are also important benefits to e-book lending which could raise demand for library services in the next five to ten years. E-readers have the potential to improve the reading experience for partially sighted readers (who can increase font size or change lighting levels appropriately) and innovative library services should be able to load e-books for the elderly or housebound, who currently face challenges in accessing traditional lending models. Libraries themselves

⁵⁸ If you are an Amazon Prime member, you can borrow books from the Kindle Owners' Lending Library and read them on your Kindle device.

⁵⁹ US start-ups Oyster and Scribd recently launched e-book subscription services based on monthly payment plans

⁶⁰ Self-published titles accounted for around one-in-five sales of e-books in the UK in 2013 - <http://www.thebookseller.com/news/uk-e-book-purchases-20-2013.html> - although self-published books are likely to be cheaper for libraries to buy, it may be more difficult to keep up with new books/authors.

⁶¹ 9% of those who consumed books online had downloaded or accessed at least one e-book illegally over the period March to May 2013 - Kantar Media (2013) Online Copyright Infringement Tracker - the average price respondents were willing to pay was £3.74.

might also find new roles as e-books increase in popularity: for example, as digital publishers, acting as hubs for aspiring writers and supporting the creation of new content.

- 1.23 There is also potential for digital media to raise the popularity of reading material. For example, the shift towards e-books, across a range of devices, will open up the possibility of new kinds of hybrid book types that mix text with music, sound, pictures and video. This could be particularly useful for special interest publications. Computer games developers are also seeking to build links with book publishers, which could increase their appeal to a younger demographic in particular⁶².

Wider Cultural and Societal Trends

- 1.24 There are a number of wider cultural and social trends which are of relevance to understanding the ways that digital technology might impact libraries over the next five to ten years. One broad trend is a shift towards greater use of video in transmitting information, away from text.
- 1.25 Whilst text remains one of the most efficient ways to transmit information, the ease with which it is now possible to make, edit and distribute video online and through other channels means that video is now an increasingly common way of communicating and accessing information on a range of topics. One measure of the extent of this shift is that over six billion hours of video are now watched on Youtube each month⁶³. Therefore for libraries there is a question as to how this shift in the way information is accessed and experienced can be supported.
- 1.26 With computers and the internet becoming increasingly important and prevalent, coding and computer skills will become increasingly important, both for personal enjoyment and career success. There is an increasing recognition that IT education for young people needs to support coding skills, rather than the traditional emphasis on learning software applications such as Microsoft Word and Excel. New devices such as Raspberry Pi, simple coding languages such as Scratch, and new ways of learning computing skills such as Codecademy are supporting this trend.
- 1.27 However, at present, there is still not a critical mass of change in UK schools, with staff often lacking the skills and confidence to support young people to use new software and hardware. The government's 'Year of Code' initiative and the new computer science curriculum starting in September is aimed at improving this situation, but there is potentially a role for libraries in supporting young people, and older customers, to learn computing skills and access new software and hardware applications.
- 1.28 The changes in digital technology will be reflected more widely in the economy and the workplace. The economy has already experienced a historic 'hollowing out' over the last two

⁶² <http://www.ft.com/cms/s/0/36d6d190-c18f-11e3-83af-00144feabdc0.html?siteedition=uk#axzz2zo3pTIGV>

⁶³ <http://www.youtube.com/yt/press/statistics.html>

decades, with fewer middle-income jobs and more high and low skilled occupations⁶⁴. The effects of new machine technology have been discussed above, and there is reason to believe that the impact of new technologies on the kinds of work that people do will be significant.

- 1.29 Accordingly, we suggest that there will be an increasing need for effective access to life-long learning to enable people to continue to learn new skills suitable for a changing economy with changing opportunities. To date, life-long learning has been something of a buzzword, but MOOC technology makes it increasingly possible for individuals to learn remotely and to learn specific skills and information that is of relevance to them.
- 1.30 New digital technologies over the next five to ten years will also create opportunities for individuals to become designers, ‘makers’ and ‘doers’ in a way which has been difficult previously. Good examples are the way in which cost reductions in music and video hardware and software over the past decade, coupled with the rise of cheap platforms to distribute and sell media, have made music and video production more and more accessible to people on a limited budget.
- 1.31 Going forward, advances in machine technology, 3D printing and robotics are likely to have a similar impact in the realm of physical design and manufacture, enabling people to cheaply and easily design and manufacture physical goods, either for sale or simply for their own use and enjoyment. Likewise, increasing access to computer design technologies and simple coding websites will enable people to produce their own software, games and apps more easily. Crowdsourcing platforms such as Kickstarter will also enable individuals with good ideas to access financing for products and designs in a way they would not have been able to before.
- 1.32 Whilst we envisage many opportunities over the coming five to ten years, we also think that there will remain a segment of society which is relatively deprived and isolated from these developments. As the bar of what constitutes ‘up-to-date technology’ continues to rise due to new advances, individuals on low incomes, older people and people with special access needs will continue to be relatively isolated from the latest standard in technology, even whilst what constitutes the present standard falls to a more reasonable price. Even where prices are affordable, such as with low cost tablets and smartphones, skills will still be an issue for many individuals.

Conclusions

- 1.33 If there is one thing that this review has emphasised it is the dramatic *speed and scale of change in digital technologies*. This will only increase over the next five to ten years as advances in machine technology match those in computing technology, with the results likely to be startling from today’s perspective. Simply put, it is difficult to underestimate the rate and impact of technological change.

⁶⁴ BIS (2013) Hollowing Out and the Future of the Labour Market

- 1.34 Whilst we can't forecast what kinds of new technologies might be invented or the impact of those, we can see the natural progression and trajectories of some current technologies quite clearly. Internet speeds will increase everywhere, but particularly in urban areas. MOOCs will become more mature, and potentially compete head-to-head with traditional universities over the timeframe in question. Big Data will become an increasing part of organisational decision making, with implications for individual privacy.
- 1.35 The opportunities and challenges for the library service, as for many other organisations, are vast. Libraries will have to consider investments in new technologies to streamline operations and improve customer service. Libraries may be able to support in significant ways new technologies such as MOOCs, and new forms of hardware such as 3D printing and consumer robotics.
- 1.36 At the same time, libraries are faced with a significant challenge in how to respond to the internet as a rival source of information, and e-books and the slow decline of printed books. The internet makes it far simpler for individuals to access information, when they might previously have visited a library for that information, or to access reading material for pleasure. This is a hugely positive development from a societal perspective, but it necessitates that libraries find a way to complement what the internet offers people. This might involve ideas such as study groups for MOOCs, maker spaces, or local publishing activities. If this does not happen, it is likely that the historic decline in library visitor numbers will continue, with libraries increasingly focussed on supporting the most deprived parts of society. Whilst this is not necessarily a bad thing, it would be change from the universal service espoused by libraries.
- 1.37 Therefore a key conclusion of this review is that libraries must reconsider their core purpose and how that can add value for their customers. They must then translate this into a new 'mix' of offers and services that deliver this value.
- 1.38 One key insight of the trends analysis is that whilst digital services are increasingly obviating the need for interactions in a physical space, it is actually the physical aspect of libraries that is their unique feature. Put simply, *in an increasingly digital world, physical spaces for sharing become more needed and more precious.*
- 1.39 This is a slightly counter-intuitive finding, and flatly contradicts the idea that libraries are best off shifting more to an online service model, with fewer physical locations. However, we suggest that libraries will struggle to provide digital services that are as good as private providers. The experience of library e-book services to date is an illustration of this. Instead, what libraries can do is provide a complementary physical and local space for people to meet, discuss and work together.
- 1.40 Another key insight is that digital activities more than traditional library activities benefit from scale. The relatively poor quality of most LMSs and e-book lending platforms is a good example of how a fragmented service lowers quality, with many individual library services separately negotiating complex contracts that result in higher costs across the service as a whole and a worse outcome.
- 1.41 Equally, digital technologies enable many users from a wide area to create scale online without being in close proximity. Our experience of carrying out the webinars for this

assignment is an important illustration of this, as we were able to attract individuals who by their own admission would not have attended a physical meeting, thus lowering costs for all (in terms of travel and time) whilst increasing value for participants by connecting them with a greater number of people.

1.42 Therefore another key conclusion of this work is that library services must work together, preferably on a national basis, to create scale. This is particularly important for commissioning LMSs and providing a high quality e-book platform, but it also extends to sharing knowledge, best practice and ideas to implement new service options. New technologies such as MOOCs, online video, and webinars make it easier than ever to do this, and working together means that these costs are not borne by individual library authorities but by the service as a whole.

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