

UNLOCKING THE GATES OF ALEXANDRIA: DRM, COMPETITION AND ACCESS TO E-BOOKS

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New technologies can often disrupt the balance between public and private interests in copyright law. For example, the Internet has facilitated the dissemination of artistic works by allowing users to mass distribute files within seconds. In response, the entertainment industry has turned to digital rights management (DRM) as one way of combating piracy. DRM is a technique that allows copyright owners to enforce their rights by controlling what users can do with their digital files, such as by restricting the platform on which the file can be accessed. In addition, the DRM scheme is protected by anti-circumvention laws, which prevent users from "breaking" the DRM. Although the main goal of DRMs is to prevent piracy, this technique can adversely impact other interests, such as privacy and fair use. This result is apparent in the e-book market, where it affects competition. More specifically, since each bookseller uses a different proprietary DRM scheme on their e-books, compatible with a limited number of reading platforms, consumers face problems with interoperability. For example, a Kindle owner cannot buy books from Barnes & Noble, and a Nook owner cannot buy books from Apple. This lack of interoperability can increase barriers to entry, switching costs, and network effects. Consequently, consumers are often locked into an e-book ecosystem, which permits booksellers to act as gatekeepers of the e-book market. Moreover, this situation can undermine the potential of e-books to spread knowledge, promote literacy, and extend the reach of literature. Examining the effects of DRM in the e-book market, this paper will discuss the equilibrium between three different public policies: the protection of copyrighted works, the promotion of market competition and the fostering of a free and robust cultural environment.

1 INTRODUCTION

As with the printing press, by introducing new methods to copy and distribute artistic works, technological innovations often raise novel concerns about copyright protection, which frequently lead to an expansion of intellectual property rights. With the growth of digital technologies and the Internet, which permits users to quickly copy and

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distribute works at a low or zero cost, the entertainment industry started to worry about the prospect of economic losses. However, they soon realized that “the answer to the machine is in the machine”²: the same technology that poses a threat can generate tools to hinder illegal distribution. One of such tools is DRM.

In short, DRM is a set of techniques that permit copyright owners to enforce their rights by controlling what users can do with their digital files. For instance, DRM can determine under what circumstances, how many times, for how long, and on which platforms a user may access a file. In addition, this technology is protected by anti-circumvention laws that forbid users from altering it, regardless of the reason. The extent of the DRM restrictions imposed on a file is determined by the copyright holder, which raises serious concerns about users’ privacy and fair use.

Another criticism of DRM concerns interoperability. For a file protected by DRM to be readable on a device, the device must be able to process its technologic components, which is not always the case. In the e-book market, for instance, some stores use proprietary DRM schemes that are not compatible with other devices. Thus, readers acquiring a device in one store can only buy books from the same store, which results into them being locked-in into that ecosystem. This lack of interoperability, we believe, can negatively affect competition by increasing network effects, barriers to entry, and switching costs.

The use of proprietary DRM components to prevent competition in the aftermarket is not restricted to the e-book market and has increasingly become a common strategy to foreclose multi-sided markets.³ Although the protection of copyright is a legitimate goal, when such technological restrictions exceed what is considered prevention of infringement and instead interfere with competition, a series of negative effects may result. In the e-book market, we argue that such restrictions can seriously impact how readers access books and lead to a concentration of the e-book market in the hand of few companies. The result is that booksellers become gatekeepers of the e-book market, controlling the flow of

² This aphorism by Charles Clark was the title to an article he published in P. BERNT HUGENHOLTZ, *THE FUTURE OF COPYRIGHT IN A DIGITAL ENVIRONMENT* (1st ed. 1996).

³ STEFAN BECHTOLD, *THE PRESENT AND FUTURE OF DIGITAL RIGHTS MANAGEMENT—MUSINGS ON EMERGING LEGAL PROBLEMS* 619 (2003).

information. This consequence, in turn, can undermine the potential of e-books to foster various social and educational goals⁴.

Considering the importance of books in accelerating progress, this article will discuss the impacts of copyright protection in the digital world from an antitrust perspective, as well as its effects on the development of the e-book market. Part I will describe the e-book market and the potentials of e-books. Part II will define DRM, explain its main legal concerns and analyze the different types of DRM schemes. Part III will address the main antitrust implications of DRMs. Finally, Part IV will discuss how these competition restrictions can lead to a concentration on the e-book market and negatively affect the potential of e-books to spread knowledge, promote literacy, and extend the reach of literature.

2 E-BOOKS

2.1 Definition

E-books are “a literary work in the form of a digital object, consisting of one or more standard unique identifiers, metadata, and a monographic body of content, intended to be published and accessed electronically.”⁵ Books in electronic format usually have features such as annotations, highlights, search tools, hypertexts, and bookmarks, in addition to even more digital and interactive resources, including narration and video animations (in which case they are called enhanced books).⁶ As digital files, e-books require a device to be read on, such as a tablet,⁷ an e-reader,⁸ a smartphone, or a computer. The two first types of devices are the most commonly used, since they reproduce the

⁴ OECD, E-BOOKS: DEVELOPMENTS AND POLICY CONSIDERATIONS 7 (2012), <http://www.oecd-ilibrary.org/scie>

[nce-and-technology/e-books-developments-and-policy-considerations_5k912zxcg5svh-en](http://www.oecd-ilibrary.org/scie/nce-and-technology/e-books-developments-and-policy-considerations_5k912zxcg5svh-en) [hereinafter OECD].

⁵ OPEN EBOOK FORUM, A FRAMEWORK FOR THE EPUBLISHING ECOLOGY 6 (2000), http://www.immagic.com/eLibrary/ARCHIVES/GENERAL/IDPF_US/I000925F.pdf.

⁶ Magda Vassiliou & Jennifer Rowley, *Progressing the Definition of “E-book,”* 26 LIBR. HI TECH 355, 363 (2008).

⁷ Tablets are portable devices that provide a platform for a number of services, only one of which is digital reading. They are able to process specialized applications, such as games, maps, newspapers, and productivity apps, providing a diverse range of information and entertainment services. OECD, *supra* note 4, at 63. Tablet screens usually use LCD or LED technology, which provides greater image definition for the user but consumes more battery life. Examples of tablets are the iPad, the Samsung Galaxy, and the Kindle Fire.

⁸ E-readers are “handheld electronic devices, generally resembling a print book in size and shape, and dedicated to enabling the reading of e-books.” *Id.* In contrast to tablets, e-readers only provide a limited range of functions and services, specifically those related to the reading experience, such as text displays, built-in dictionaries, and highlighting tools. Most e-readers screens use e-ink technology, which resembles paper and is supposedly more adequate for reading. Examples of e-readers are the Kindle, the Nook, and the Kobo.

experience of reading a physical book more accurately. In contrast, computers are far less portable, while smartphones typically have smaller screens.

2.2 History

Although the e-book market has showed substantial growth only in recent years, the concept of digital reading and portable libraries emerged in the mid-1900s, when the first computers were in development. Vannevar Bush, one of the first pioneers of digital reading, believed in the use of technology to facilitate and simplify storage and retrieval of information⁹. Concerned with information overload, Bush envisioned a device called Memex, similar to a desk, that was capable of storing books, records, and other types of information as well as opening files and annotating, as a way of facilitating access to sources and managing work.¹⁰ In 1967, inspired by Bush's ideas, Andries van Dam developed the Hypertext Editing System, a system to organize data that also allowed the reading of books on a computer screen. Around the same time, Alan Kay conceptualized the Dynabook, a reading device similar to a portable computer that would simplify the exchange of information and promote childhood education.¹¹

Books gradually started being digitalized, especially after 1971 when Michael Hart founded Project Gutenberg, a platform designed to digitally store the contents of libraries, in particular public domain books. The first reading software appeared in the 1980s, while Sony launched the first dedicated reading device, the Data Discman, in 1991.¹² However, the market was still very underdeveloped at this time.

Progress accelerated in the late 1990s, when projects like NetLibrary, Questia, Internet Archive, and ebrary helped expand the amount of digital books available.¹³ In addition, in 1998, a conference organized by the National Institute of Standards and Technology and the National Information Standards Organization gave birth to the ideas that would lead to the creation of the Open Ebook Forum, now known as the International Digital Publishing Forum, to manage issues such as standard e-books formats, thus

⁹ Lynn Connaway, *What Happened to the E-book Revolution?: The Gradual Integration of E-books into Academic Libraries*, 10 J. ELECTRON. PUBL. 1, 2 (2007).

¹⁰ Vannevar Bush, *As We May Think*, THE ATLANTIC, July 1, 1945, <http://www.theatlantic.com/magazine/archive/1945/07/as-we-may-think/303881/>.

¹¹ Connaway, *supra* note 9, at 2.

¹² Laura Manley & Robert P. Holley, *History of the Ebook: The Changing Face of Books*, 29 TECHNICAL SERVICES QUARTERLY 292, 297-98 (2012).

¹³ Connaway, *supra* note 9, at 2.

symbolizing the industry's effort to overcome its recent setbacks.¹⁴ At the same time, the U.S. began to pass legislation such as the Digital Millennium Copyright Act ("DMCA") to address digital file protections, diminishing some of the insecurities that the digital world brought to copyright holders.

The first successful attempt to sell e-books occurred in 2000, when Stephen King published "Riding the Bullet" in electronic form, charging \$2.50 for each copy. According to Simon & Schuster, his publisher, roughly half a million users downloaded it.¹⁵ However, hackers soon removed the book's anti-piracy encryption, which resulted in its free distribution on the web. Later that year, King gave digital publishing another try with "The Plant." This time, the chapters were released at regular intervals, unencrypted, and readers could pay \$1.00 if they wished. However, if less than 75% of downloaders paid for the book, he would stop publishing. Eventually, the number of paid downloads dropped to 50%, and King terminated the project.

Even with so many advances, the reach of digital reading remained very limited. For instance, the first attempt by Barnes & Noble to sell digital books ended in 2003, only three years after the bookstore signed a deal with Microsoft to sell books compatible with Microsoft Reader, in a decision motivated by poor sales.¹⁶ Scholars have identified many reasons contributing to its low sales, including the lack of proper reading devices (which were at the time heavy, expensive, and burdened by small screens), user resistance to digital reading, the lack of books available in digital form, a tedious process for buying and accessing digital books, and relatively high prices.¹⁷ In addition, the absence of a standard digital format was a matter of concern for the consumer, especially after VHS-Betamax, and restrictions imposed by DRM schemes were already considered inconvenient.¹⁸ As a result, advances in this market remained shy until mid-2000, when Sony launched the Sony Portable Reader and its store, Connect eBook, with around 10,000 titles. One year later, Amazon launched the first Kindle, whose initial success led to a depleted stock just a few hours after its debut. Barnes & Noble joined the market in late 2009, followed by Apple a few months later.

¹⁴ Nancy K. Herther, *The E-book Industry Today: A Bumpy Road Becomes an Evolutionary Path to Market Maturity*, 23 THE ELECTRONIC LIBRARY 45, 46 (2005).

¹⁵ Sarah Ann Long, *The Case for E-books: An Introduction*, 104 NEW LIBR. WORLD 29, 30 (2003).

¹⁶ Evan Hansen, *Barnes & Noble Shelves E-books*, CNET NEWS, September 9, 2003, http://news.cnet.com/Barnes-38-Noble-shelves-e-books/2100-1017_3-5073796.html.

¹⁷ Herther, *supra* note 14, at 46-47; Connaway, *supra* note 9, at 5.

¹⁸ Roberta Burk, *E-book Devices and the Marketplace: In Search of Customers*, 19 LIBR. HI TECH 325, 329 (2001).

Since then, the e-book market has demonstrated impressive growth. In 2008, the Association of American Publishers reported a net revenue of \$62 million, and this value increased to \$863 million in 2010.¹⁹ In addition, Amazon reported that digital sales surpassed physical book sales for the first time in 2011.²⁰ By 2013, adult trade e-books in the U.S. already counted for \$1.3 billion in revenue.²¹ Factors such as advances in the hardware and software industry; increases in the exchange of digital files; the development and diffusion of technologies such as Hyper Text Markup Language (“HTML”) and Extensible Markup Language (“XML”); and the rise and spread of digital culture are considered fundamental reasons for this success.²²

2.3 Contractual Aspects

The market chain starts with the creation of the book by the author. The book is then forwarded to the publisher by the author’s own initiative or through literary agents. Afterwards, the author negotiates with the publisher the copyright on the work and the percentage of profit as royalties from sales. The publishers select the works according to consumer preferences, refine the author’s ideas and writing, and oversee the production of the book, which includes editing, proofreading, and printing. In addition, the publishers are responsible for promotion, distribution, and negotiations with retailers. It is the distribution, either directly or via an intermediary agent, that effectively makes the book available to readers.²³ The author, on average, receives 8-15% of the book price, the publisher 30%, the distributor 10-15%, and the bookstore 40%, although these figures may vary from case to case.²⁴

Usually, the market chain is organized through wholesale agreements. In this model, the list price (printed on the cover) is set by the publisher and is, theoretically, the final price for the consumer. The book is then sold to retailers at a discount off the list price, usually around 50%. Retailers determine the final price based on what they consider to be

¹⁹ David O’Brien et al., *E-Books in Libraries: A Briefing Document Developed in Preparation for a Workshop on E-Lending in Libraries* 1, 5 (2012).

²⁰ Claire Cain Miller & Julie Bosman, *Amazon’s E-Book Sales Pass Print Books*, THE NEW YORK TIMES, May 19, 2011, <http://www.nytimes.com/2011/05/20/technology/20amazon.html>.

²¹ Jeremy Greenfield, *Ebook Growth Slows to Single Digits in U.S. in 2013*, DIGITAL BOOK WORLD, Apr. 1, 2014, <http://www.digitalbookworld.com/2014/ebook-growth-slows-to-single-digits-in-u-s-in-2013/>.

²² Siriginidi Subba Rao, *Familiarization of Electronic Books*, 19 ELECTRON. LIBR. 247, 248 (2001).

²³ OECD, *supra* note 4, at 26; Leonardo Bastos da Fonseca, *Crescimento da Indústria Editorial de Livros do Brasil e Seus Desafios*, Universidade Federal do Rio de Janeiro, at 53 (2013).

²⁴ OECD, *supra* note 4, at 26.

reasonable, which can result in a price below what was paid to the publisher. Unsold copies can be returned for the publishers for credit.²⁵

As for digital publishing, the book can be sent directly to the publisher, where it then follows the normal market chain before referral to digital distributors and online booksellers. Overall, digital books eliminate about 30% of production costs, which allows a redistribution of value along the chain.²⁶ With these cuts, it is estimated that the production costs of a digital book would be covered by the sale of only thirty copies.²⁷ In this context, the list price usually varies to around 20-30% below that of a physical book. Alternatively, the author can also opt for self-publishing, where the book directly goes to digital distributors or online booksellers to be sold to readers.²⁸ Here, in return for a 30% commission fee, stores such as Apple and Amazon offer platforms for self-publishing authors.²⁹

2.4 Benefits of e-Books

e-Books have both advantages and disadvantages compared to physical books. One of the most notable benefits experienced by the reader is convenience. Users have the ability to purchase and download content in minutes, any time of the day, and without leaving home. In addition, e-books are extremely portable. It is possible to store thousands of works in a small device that is often lighter than a physical book. Also, the built-in dictionary permits readers to easily look up the meaning of a word, while the search tool helps readers locate specific words and sections in the book. Similarly, the ability to customize and interact with the text is also very useful. For example, readers can alter the type and size of the font, which, like text-to-speech technology available in some devices, increases accessibility.³⁰ In addition, readers can also highlight, bookmark, and annotate

²⁵ ANDREW RICHARD ALBANESE, THE BATTLE OF \$9.99: HOW APPLE, AMAZON, AND THE BIG SIX PUBLISHERS CHANGED THE E-BOOK BUSINESS OVERNIGHT 4 (2013).

²⁶ OECD, *supra* note 4, at 27.

²⁷ FABIO SÁ EARP & GEORGE EDWARD KORNIS, A ECONOMIA DA CADEIA PRODUTIVA DO LIVRO 150 (2005).

²⁸ Fonseca, *supra* note 23, at 53-54.

²⁹ OECD, *supra* note 4, at 31.

³⁰ “The increasingly wide-spread availability of digital book content, thus, has the potential to dramatically improve the amount and range of accessible material available to people suffering from ‘print disabilities.’ The flexibility of digitalized data allows it to be simultaneously ‘translated’ from a visual text display into voice-audio mode. The digital text of a book can also be ‘translated’ into a braille version of the book. Finally, the electronic display of digital text can be shaped and tailored, by design, to suit the needs of particular visual or mental conditions.” OECD, *supra* note 4, at 9.

without permanent damage. Damages caused by time and repeated use, such as yellowing, torn pages, and broken bindings, can likewise be avoided.³¹

For authors, digital books can help access the target audience more easily and increase the amount of readers, as well as improve the financial return on the work,³² especially if the author chose to self-publish. For publishers, digital mass production is significantly cheaper, simplifies the distribution process, and reduces upgrade costs, in addition to eliminating problems with out-of-stock books.³³ These circumstances mean that many ideas that were not materialized before, due to reasons such as high costs, economic unviability, or a lack of approval from a publisher, can now transform into books.³⁴⁻³⁵ These factors are so relevant that some consider the e-book the most important driving force in the publishing industry as of late. Indeed, the space opened by digital publishing is particularly advantageous to new authors. In addition, authors and publishers can use digital markets as low-cost laboratories for evaluating the potential of a work without the need to print and physically distribute it. In this sense, digital books can promote democracy in the publishing business.³⁶

³¹ Burk, *supra* note 18, at 326-27; Michael Seringhaus, *E-book Transactions: Amazon Kindles the Copy Ownership Debate*, 12 YALE J. L. TECH. 147, 153 (2009).

³² Rao, *supra* note 22, at 249-50.

³³ *Id.* at 200; Long, *supra* note 15, at 29-30.

³⁴ Fonseca, *supra* note 23, at 75.

³⁵ Publishers have been considered the gatekeepers of the book industry for a long time. In fact, there are several now famous and respected works that were initially rejected, such as William Golding's "Lord of the Flies", Anne Frank's diary, Faulkner's "Sanctuary", and Rowling's "Harry Potter and the Sorcerer's Stone". As OECD explains, "Authors of book content have, for hundreds of years, handed over editorial, legal and intellectual property rights, to those with the resources required to produce and distribute it to 'the public.' The arrangement relies, in particular, on the publisher's control of: (i) the significant resources required for production, storage and distribution of books; (ii) the relationships with wholesale distribution networks and booksellers; (iii) publicity and marketing campaigns; (iv) advance payments for content creation. (v) responsibility for legal and regulatory compliance (copyright and content censorship). With their privileged access to limited resources, on the one hand, and their role as judge and arbiter of standards for publically available content, on the other, publishers are positioned as the gatekeepers for the book industry. They have effectively assumed both the responsibility, and the right, to select, and to shape, the content of the printed reading material distributed for public consumption. [...] E-book publishing bypasses the critical reliance, of both ends of the book value chain, on the resources held by the gatekeeper in the middle. E-books, thus, present a potential paradigm shift in the accepted relationship between content creator and publisher. It effects hitherto unquestioned assumptions about the nature, and the role, of the publisher in the value chain for the book industry." OECD, *supra* note 4, at 11-13.

³⁶ According to a study conducted by Bowker, the number of self-published books grew by 60% in 2012 in comparison to 2011. This increase is credited to the rise of digital self-publishing, which corresponded to 40% of self-published titles in 2012, a considerable growth compared to 11% in 2011. DBW, *Bowker: Number of Self-Published Titles Grows Nearly 60% in 2012*, DIGITAL BOOK WORLD, October 9, 2013, <http://www.digitalbookworld.com/2013/bowker-number-of-self-published-titles-grows-nearly-60-in-2012/>. According to a recent report, self-published authors now account for 31% of e-book sales on Amazon. Richard Lea, *Self-publishing Surging to 31% of Ebook Market, Claims Report*, THE GUARDIAN, July 18, 2014, <http://www.theguardian.com/>

Just as digital books can help authors access more readers, digital books can also improve readers' access to more books and information. For example, digital distribution significantly diminishes geographic barriers so that the same work can be read by someone in London or Bogota³⁷ as long as they have Internet access. This facilitates the exchange of information and promotes diversity in knowledge, since people are no longer limited by what the local bookstore or library offers. Importantly, as a result, people have more opportunities to master a foreign language, learn from other cultures, and broaden their views and experiences.

Second, e-books cost significantly less.³⁸ E-books are generally 30% cheaper than physical books, although this discount can vary greatly. Books in the public domain, however, can be found for free on a number of platforms such as Project Gutenberg, which offers the complete works of renowned authors such as William Shakespeare, Jane Austen, and many others. As a result, due to lower and sometimes zero costs, e-books significantly multiply the number of literary choices and sources of information available to readers.

Third, digital reading can help spread literacy, which in turn can have many positive effects.³⁹ For example, literacy has an extremely valuable impact on education and can empower individuals by giving them more control not only over their learning and knowledge but also over everyday situations that require reading. Literacy can also increase written communication between individuals and participation in the community by permitting access to information about social and political events. It can affect maternal and adolescent health, allowing mothers to access information about nutrition and health care. It can foster cultural identity by enabling individuals to access written records on culture and heritage, contributing to cultural preservation and diversity. And, of course, literacy can

books/2014/jul/18/report-self-publishing-surg-ing-ebook-market-amazon?et_mid=682880&rid=246269468. Also, in July 14, 2014, small or medium publishers represented 45% of Amazon's E-book Bestsellers List, indie publishers 25%, single-author publishers 13%, and Amazon publishers 1%, compared to 16% from "Big Five" publishers (Hachette Book Group, HarperCollins, Macmillan Publishers, Penguin Random House and Simon and Schuster; formerly known as "Big Six" before Penguin and Random Houses' merger in mid-2013). AUTHOR EARNINGS, JULY 2014 AUTHOR EARNINGS REPORT (2014), <http://authorearnings.com/july-2014-author-earnings-report/>.

³⁷ As Epstein imagined in 2001, from a multilingual directory of digitalized texts, "readers at their home computers may transfer the materials they select to machines capable of printing and binding single copies on demand at innumerable remote sites and perhaps eventually within their own homes. One such location might be a kiosk at the corner of my Manhattan street while readers at the headwaters of the Nile or in the foothills of the Himalayas will have similar access to the world's wisdom from their own nearby kiosk." JASON EPSTEIN, *BOOK BUSINESS: PUBLISHING PAST, PRESENT, AND FUTURE XII-XIII* (Rep. ed. 2012).

³⁸ According to a UNESCO study, the two main reasons people adopt digital reading are convenience and affordability. UNESCO, *READING IN THE MOBILE ERA A STUDY OF MOBILE READING IN DEVELOPING COUNTRIES 37* (2014), <http://unesdoc.unesco.org/images/0022/002274/227436e.pdf>.

³⁹ *Id.*

have an enormous impact on socio-economic development,⁴⁰ granting individuals a wider range of choices in education and skills development.⁴¹

Fourth, this increase in access and convenience can promote growth in reading rates. In fact, research shows that individuals who read e-books are reading more than those who read only physical books.⁴² The habit of reading is extremely valuable, leading to positive effects such as the exercise of imagination, an understanding of cultural roots and the importance of community, an increase in empathy, vocabulary expansion, and stronger analytical thinking. The list goes on, as the impacts of reading cannot be measured. A good book can boost your self-knowledge, shape your life, and even define who you are. Finally, e-books eliminate problems with out-of-stock or out-of-print titles, which can also increase access to information.

Naturally, digital books also have certain drawbacks. Previously, factors such as the cost of reading devices and the amount of available titles were major setbacks to the market, although both have improved significantly in recent years. Yet, there are still some obstacles to the full development of the market. For example, while physical books can be purchased, resold, or lent at the discretion of its owner, digital books cannot.⁴³ Also, e-book sellers have considerable control over both the content of their bookstores and user access to purchased content, as explained in Sections 5.1.1 to 5.1.3.⁴⁴ However, consumers cite problems with interoperability and restrictive DRM as one of the main reasons discouraging the use of e-book technology.⁴⁵ In the next section, we will examine what DRM is exactly and how it operates within the e-book market in order to understand how the positive effects of e-books can be undermined by its adoption.

3 DRM

3.1 Definition

Since artistic works can often be copied freely, a general belief exists that without intellectual property, there would be no incentives to creative production, as any time and

⁴⁰ Substantial research also links wealth with access to books. *Id.* at 14.

⁴¹ ELLIE MELEISEA ED & SCIENTIFIC, AND CULTURAL ORGANIZATION, BANGKOK (THAILAND) UNITED NATIONS EDUCATIONAL, USING ICT TO DEVELOP LITERACY 10-12 (2006).

⁴² Lee Rainie et al., THE RISE OF E-READING PEW INTERNET LIBRARIES (2012), <http://libraries.pewinternet.org/2012/04/04/the-rise-of-e-reading/> (last visited Jul 24, 2014).

⁴³ Rao, *supra* note 22, at 250.

⁴⁴ Seringhaus, *supra* note 31, at 154.

⁴⁵ INTERNATIONAL DIGITAL PUBLISHING FORUM, EBOOK USER SURVEY (2006).

effort invested would never be compensated.⁴⁶⁻⁴⁷ The spread of digital technology has only increased concerns among content creators and distributors over the mass distribution of files without authorization or economic consideration. Over time, however, these actors began to realize that the same technology that facilitates piracy also offers numerous possibilities for controlling files.⁴⁸

One such possibility is digital rights management (“DRM”), a set of techniques that can control the use and distribution of digital files containing video, audio, photo, or text with the purpose of protecting intellectual property.⁴⁹ DRM involves both the management of digital rights (identifying content, collecting metadata, and listing the content rights) and the enforcement of those rights.⁵⁰ As a self-help technology, DRM permits content providers to strictly control the method, time, and place of use.⁵¹

DRM systems can be traced back to a time when computers were physically massive and shared by many users, which necessitated the creation of different access permissions for system files depending on the individual using the machine. Each user group could make different uses of the file, such as reading, editing, running, and

⁴⁶ Dan L. Burk, *Legal and Technical Standards in Digital Rights Management Technology*, 74 *FORDHAM REV* 537, 537-38 (2005).

⁴⁷ “Like any information, digital content is (to some extent) a public good characterized by its non-rivalry and non-exclusivity. Because it is impossible to exclude non-paying consumers from the consumption of the content, no consumer will pay for using the content. Hiding his real preferences, every consumer hopes that another consumer will buy the content and that he can use this content as well due to its nonexclusive and non-rivalrous nature (‘free rider problem’). As a result, nobody would create content in the first place, as the costs of creation could never be recouped. To eliminate this market failure, the law grants the content producer a property right known as copyright. Through copyright law, the content producer is able to exclude non-paying consumers and copyists from using his content. Copyright law artificially raises the costs of copying content, thereby enabling the content producer to recover his costs of creation. To a certain extent, copyright law eliminates the nonexclusivity of content.” Stefan Bechtold, *From Copyright to Information Law – Implications of Digital Rights Management*, in *SECURITY AND PRIVACY IN DIGITAL RIGHTS MANAGEMENT* 213, 222 (2002).

⁴⁸ “While the proliferation of digital technology raises the cost of policing and enforcing legal exclusion, the same technology may also offer the producers of intangible goods an alternative method of exclusion. Because digital technology is capable of virtually modeling structural reality, it can be programmed to mimic the characteristics of tangible property. Producers of intellectual property may therefore resort to a form of self-help by reembedding intangible goods in digital rights management systems, or ‘DRM’, that simulate the natural appropriability resistance of physical goods. Such technological controls prohibit or constrain the copying and distribution that digital formats invite. By essentially transforming public goods back into private goods, owners of intellectual property may introduce into the design of digital media the more congenial constraints of more traditional media. Indeed, the constraints imposed by DRM may, in some cases, be designed to exceed those of traditional media.” Burk, *supra* note 46, at 538-39.

⁴⁹ Marc Fetscherin & Matthias Schmid, *Comparing the Usage of Digital Rights Management Systems in the Music, Film, and Print Industry*, in *PROCEEDINGS OF THE 5TH INTERNATIONAL CONFERENCE ON ELECTRONIC COMMERCE* 316, 317 (2003).

⁵⁰ EBERHARD BECKER, *DIGITAL RIGHTS MANAGEMENT: TECHNOLOGICAL, ECONOMIC, LEGAL AND POLITICAL ASPECTS* 4 (2003).

⁵¹ Bechtold, *supra* note 47, at 215.

deleting.⁵² Also, the expansion of sharing technologies based on either physical media (floppy disks and CD-ROMS) or networks (local area networks), and, later on, the commercialization of the Internet in 1994 facilitated the exchange of files between machines and servers, which eventually led to the development and improvement of encryption techniques, such as passwords, to access files.⁵³⁻⁵⁴

In general, DRM control operates via software, but it can also be found in hardware. The three most common types of DRM control are (1) content encryption so that unauthorized users cannot access it; (2) a licensing system that determines who can use the content and how it is used, which can vary according to the circumstances – for example, a music file that, depending on the amount paid, can either be streamed or downloaded from the server to the user’s personal computer; and (3) user or device authentication to access the file.⁵⁵ To achieve a reasonable level of security, several techniques are normally used together to ensure the integrity of the digital archive and its protection against acts of circumvention.⁵⁶ For example, the most common type of protection is the combined use of encryption with a password.⁵⁷ These controls may impose various types of restrictions, such as (1) restrictions on access, which can permit the user a one-time or permanent access depending on the fee paid or set limitations on access to adult content based on the user’s age; (2) restrictions on copying, which can prevent, for example, certain digital music files from being written to a CD; (3) restrictions on interoperability, which can prevent a digital

⁵² BILL ROSENBLATT ET AL., *DIGITAL RIGHTS MANAGEMENT: BUSINESS AND TECHNOLOGY X* (1st ed. 2001).

⁵³ *Id.* at XI.

⁵⁴ “Three developments took place within two years after 1994 to create the paradigm that we now know as digital rights management. Two of these were the first well-known DRM systems from commercial vendors: infoMarket from IBM and a system from the startup company Electronic Publishing Resources (EPR). [...] The third major development that catalyzed the DRM paradigm was the publication of the paper ‘Letting Loose the Light: Igniting Commerce in Electronic Publishing’, by Dr. Mark Stefik, a researcher at Xerox PARC research labs. This landmark paper defined what you could call ‘techie’s view’ of DRM for all time. It said, in essence, that it should always be possible to strictly define and control who can do what to a piece of content, when, on what devices, and for how much money or other form of consideration.” *Id.* at XII.

⁵⁵ OECD, *REPORT ON DISCLOSURE ISSUES RELATED TO THE USE OF COPY CONTROL AND DIGITAL RIGHTS MANAGEMENT TECHNOLOGIES 6* (2006), <http://www.oecd-ilibrary.org/content/workingpaper/231477833812>.

⁵⁶ More specifically, “DRM systems employ different techniques to identify consumers and trace back illegally copied content (e.g. serial numbers, digital fingerprints, traitor tracing). In order to provide a uniformly high level of security, various techniques are used that ensure the integrity and authenticity of digital content, its accompanying metadata and the hardware and software components of a DRM system (e.g. digital signatures, fragile watermarks, challenge-response protocols). Furthermore, security attacks are complicated by tamper-proof hard- and software (e.g. smart cards, code obfuscation). In order to prevent the copying of protected content after it has been transformed into an analog format, special analog protection systems and digital watermarks intend to make such copying more difficult at least.” Bechtold, *supra* note 47, at 215.

⁵⁷ John A. Rothchild, *Economic Analysis of Technological Protection Measures*, 84 OR. L. REV. 489, 493 (2005).

file with a certain format from being accessed on certain devices; and (4) geographical constraints, for example region locks on DVDs.⁵⁸⁻⁵⁹

DRM schemes make use of metadata to describe the digital content, identify its rightsholders, and express the conditions of digital file use through “rights expression language” (“REL”).⁶⁰ REL allows the content distributor to embed content usage rules in the file.⁶¹ The most well-known examples of REL are the “eXtensible rights Markup Language” (“XrML”) and the “Open Digital Rights Language” (“ODLR”). XrML is an XML-based language that describes the rights and conditions for the use of digital files. In this type of language, it is possible to express rules and permissions for actions such as copying, deleting, modifying, opening, exporting, annotating, installing, backing up, lending, selling, giving, printing, reading, downloading, uninstalling, and saving, *inter alia*. All these variables may be subject to circumstances such as time, place, the device used, the user, the purpose, and whether payment was present.⁶² XrML was developed by ContentGuard, a company created as a partnership between Microsoft and Xerox. Some believe that XrML has the potential to serve as the basis for a universal REL, since it is already the base language for standards such as MPEG-21.⁶³ In contrast, ODLR started as an initiative for an open language and offers a royalty free alternative to XrML.⁶⁴

Just like spoken languages, technical elements must understand each other in order to operate together. For example, if a DRM-protected music file is distributed to a music platform to be played on a portable device, the DRM systems involved must at least interpret the same language in order to carry out the instructions and usage restrictions.⁶⁵ As we will observe in more detail in Section 3.3, technological restrictions are only one part of how DRM operates – another important part is the legal protection of such systems.

⁵⁸ OECD, *supra* note 4, at 6.

⁵⁹ “For example, the DRM system might be programmed to permit only one playback of a work, or allow only one copy of a work to be printed. Technological control systems may tie access or use of the work to a certain machine, or, when attached to a network or other signaling device, monitor the degree and type of use of the work—perhaps to meter payment by the minute, by the bit, or by some other unit of usage. They may allow different levels of use depending on the level of payment made. Contingent or alternative terms might be programmed into the system, allowing a single access for a certain fee, or unlimited access for a higher fee. Access might even be revoked automatically, or by remote command, if payments are not made in a timely fashion.” Burk, *supra* note 46, at 547.

⁶⁰ Stefan Bechtold, *Digital Rights Management in the United States and Europe*, 52 AM. J. COMP. L. 323, 344 (2004).

⁶¹ Bechtold, *supra* note 3, at 603-04.

⁶² *Id.*

⁶³ Urs Gasser & John Palfrey, *Case Study: DRM-protected Music Interoperability and e-Innovation* 1, 14 (2007).

⁶⁴ *Id.*

⁶⁵ *Id.* at 13.

3.2 Anti-circumvention Laws

Anti-circumvention laws are legislations that protect DRM systems from acts that could break it. Article 11 of the WIPO Copyright Treaty, signed in 1996, calls for adequate legal protection and remedies against the circumvention of technological measures used by authors to protect their rights and restricts acts that are not authorized by them or permitted by law, such as DRM. A number of parties, such as the U.S. and the European Union, have signed this treaty and adopted such protections in their domestic laws.⁶⁶⁻⁶⁷ As Burk states, “the rationale behind such laws maintains that where technology provides the first line of defense against unauthorized uses of copyrighted works, the legal protection needed to encourage creativity may not necessarily be deterrence against violation of copyright or similar proprietary rights, but rather legal deterrents against circumvention of technological protections.”⁶⁸

3.2.1 *Digital Millennium Copyright Act*

In the U.S., anti-circumvention laws are part of the Digital Millennium Copyright Act of 1998. DMCA protects two types of technologies: (1) technological protection measures that control access to a work (“access control”) and (2) technological protection measures that protect rights of the copyright owner (“usage control”). These technologies can be infringed by two types of conduct: (1) the production and distribution of tools or devices that are (a) primarily designed to circumvent; (b) have limited commercial purpose other than to circumvent; or (c) are marketed for circumvention (“preparatory activities”); and (2) individual acts of circumvention.⁶⁹ While the first type of conduct is penalized when applied to both technologies, the latter is only penalized for access controls. The exception for individual acts of circumvention regarding usage controls aims to ensure that the public can make fair use of copyrighted works.⁷⁰

⁶⁶ Angela Daly, *E-Book Monopolies and the Law*, 18 MEDIA & ARTS LAW REVIEW 1, 5 (2013).

⁶⁷ Other treaties, such as the WIPO Performances and Phonograms Treaty (Article 18) and the Convention on Cybercrime, negotiated by the Council of Europe, as well as bilateral agreements (e.g. between the U.S. and Singapore) also carry similar provisions. Bechtold, *supra* note 60, at 321-23.

⁶⁸ Burk, *supra* note 46, at 557.

⁶⁹ Bechtold, *supra* note 60, at 321-23.

⁷⁰ There are also exceptions regarding (i) nonprofit libraries, archives, and educational institutions; (ii) reverse engineering; (iii) encryption research; (iv) protection of minors; (v) personal privacy, and (vi) security testing.

CONDUCTS	TYPE OF TECHNOLOGICAL PROTECTION MEASURE	
	Access control	Usage control
Preparatory activities	Prohibited by §1201(a)(2)	Prohibited by §1201(b)
Individual acts of circumvention	Prohibited by §1201(a)(1)	Not prohibited

TABLE 1 – DMCA Protections⁷¹

For instance, imagine an individual who buys a digital copy of a book that can be accessed on only one computer and cannot be printed. The DMCA would not prohibit circumvention to enable printing, but it would prohibit the making or the distribution of the tool used for this act. However, bypassing the code to make the file accessible on another computer would be against the law,⁷² as well as making or distributing a tool for this purpose.⁷³ From this example, it is easy to see that the exception made to individual acts of circumvention of usage controls is insufficient to preserve fair use.⁷⁴⁻⁷⁵ It is also important to note that fair use is not a valid excuse to practice circumvention in situations prohibited by §1201.⁷⁶

⁷¹ Table inspired by JULIE E. COHEN ET AL., COPYRIGHT IN A GLOBAL INFORMATION ECONOMY 662 (3d ed. 2010).

⁷² There is, however, one circumstance on which the circumvention of access controls is permitted. According to the Library of Congress, “[L]iterary works, distributed electronically, that are protected by technological measures which either prevent the enabling of read-aloud functionality or interfere with screen readers or other applications or assistive technologies, (i) when a copy of such a work is lawfully obtained by a blind or other person with a disability, as such a person is defined in 17 U.S.C. 121; provided, however, the rights owner is remunerated, as appropriate, for the price of the mainstream copy of the work as made available to the general public through customary channels; or (ii) when such work is a nondramatic literary work, lawfully obtained and used by an authorized entity pursuant to 17 U.S.C. 121.” Exemption to Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies, 77 Fed. Reg. 65260, 65262 (Oct. 26, 2012). It should be noted that there is also an exemption for circumventing the operating systems of mobile phones to enable interoperability between software applications (commonly known as “jailbreaking”), but this does not apply to tablets or e-readers.

⁷³ JULIE E. COHEN ET AL., COPYRIGHT IN A GLOBAL INFORMATION ECONOMY 663 (3d ed. 2010).

⁷⁴ “Congress appears to have distinguished between access controls and usage controls, allowing circumvention of the former but not the latter, in order to enable user privileges and exemptions. In theory, a user would have to obtain authorized access to a protected work, but having done so, could without authorization circumvent usage controls to make fair or other permissible uses. In reality, however, few content users have the skills to circumvent the usage controls, and the statute prohibits those who have such skills from assisting those who do not. Moreover, access controls are essentially indistinguishable from usage controls, and as a practical matter provide control of both access and use.” Burk, *supra* note 46, at 558-59.

⁷⁵ Further discussions about making anti-circumvention rules and DRM systems compatible with fair use are outside the scope of this work.

⁷⁶ “However, fair use and the Copyright Act’s other limitations on the exclusive rights are not available to justify an act of circumventing an access control. As one court explained, Congress chose to balance the

3.2.2 Brazil

Even though Brazil is not a contracting party to the WIPO Copyright Treaty, Brazil's copyright law (Lei n. 9.610/98) also carries anti-circumvention provisions in its Article 107, which prohibits the modification or removal of technical protection measures that have been incorporated into copies of protected works to prevent or restrict reproduction and also the distribution of works with the knowledge that such measures have been removed.

Three main differences between Article 107 and the DMCA should be noted. First, Article 107 does not differentiate between usage and access control. Second, the distribution of devices aimed to circumvent technical protection measures is not prohibited. Third, there are no exceptions to the circumvention of DRM systems, which means that the uses permitted by copyright law do not have to be respected by technological protection measures.⁷⁷ Some academics argue that the law was written when the Internet was still an emerging technology in Brazil, which would explain why the statute does not require adherence to copyright limits on technological protection measures but, at the same time, fails to protect access controls and to penalize the distribution of circumvention tools.⁷⁸

3.3 Technology, Law, and Contract

Although DRM is a technological lock designed to prevent certain practices involving digital files, its effectiveness derives not only from its architectural restrictions but also from a combination of technology, law, and contractual rules.⁷⁹ We have already examined how the technological components work and some of the legal systems that support DRM technology through anti-circumvention rules.⁸⁰

interests of copyright owners and users with respect to the anti-circumvention rules not by importing the limitations on infringement liability from the Copyright Act but by crafting a set of exceptions to section 1201 liability for circumventing access controls and by providing a mechanism by which the Librarian of Congress may create additional exceptions through triennial rulemaking proceedings. [...] In theory, circumvention of a use control to engage in fair use is neither a violation of section 1201 nor an infringement of the copyright owner's exclusive rights; as a practical matter, however, few will be able to exercise this right because the trafficking ban makes circumvention technologies hard to acquire. Moreover, to the extent that publishers deploy access controls, circumvention is a violation of section 1201 even if done to enable a fair use (unless one of section 1201's own exceptions is applicable)." Rothchild, *supra* note 57, at 500-03.

⁷⁷ Heitor Miranda, *Cópia Privada e Digital Rights Management*, Universidade de São Paulo, at 92 (2011).

⁷⁸ *Id.* at 91.

⁷⁹ Bechtold, *supra* note 47, at 219-20.

⁸⁰ Also, it is important to note that the legal protection assured to DRM systems can, in some cases, have two dimensions: anti-circumvention rules and patent protection. Indeed, DRM systems are often protected by patents or trade secrets, which means that if a content provider wants to use a certain type of DRM on its files,

The contractual aspect of DRM's effectiveness refers to contracts, usually terms of use, celebrated between the content provider and the user acquiring DRM-protected content. In essence, every time a DRM-protected content is acquired, the user must agree to terms and conditions that compel him to only use that content in a certain way. Not only do these contracts reflect the restrictions imposed by DRM architecture, they often also protect the DRM system itself by obligating the consumer not to circumvent it. For example, some transactions require that the user agree not to violate or manipulate the technological lock regardless of the reason.⁸¹⁻⁸² Even though these terms raise some concerns regarding validity where click-wrap agreements are involved, as contracts between free, private parties, they do not have to follow copyright limitations and can impose restrictions on use and on otherwise lawful actions – as they often do.⁸³

The following is an example of how technology, law, and contract interact with one another. If the contractual rules fixed by the content provider determine that the user can only access the file on a device or software developed by that same company,⁸⁴ accessing the file in another environment will be prevented by the DRM system. However, DRM systems are not 100% fail proof and can be hacked. Accordingly, the law prohibits the manufacture and distribution of tools to circumvent DRM systems, along with some individual acts of circumvention. Therefore, the user can be held accountable for both breach of contract and legal infringement. As Bechtold explains, “these means of protection do not operate independently. If one of the means fails, another means steps in which sustains the overall protection level of the DRM system. The security of a DRM system is not accomplished by technology, law or market forces alone. Rather, it is a result of numerous different, but intertwining means of protection.”⁸⁵

or an electronics manufacturer wants to enable his devices to process the content provided by that DRM, they have to enter a technology license agreement with this DRM system developer. Bechtold, *supra* note 3, at 610.

⁸¹ For instance, under Apple's iBookstore Terms and Conditions, the user must agree “not to violate, circumvent, reverse-engineer, decompile, disassemble, or otherwise tamper with any of the security technology related to such Usage Rules for any reason-or to attempt or assist another person to do so.” Apple, Terms and Conditions, <http://www.apple.com/legal/internet-services/itunes/bw/terms.html#APPS> (last visited July 24, 2014).

⁸² Bechtold, *supra* note 47, at 217.

⁸³ One might question why content providers do not rely solely on contractual protection as a way of avoiding fair use exemptions. As Bechtold rightly observes, this protection has some limitations, such as not including users that obtain pirated copies online or supervision and monitoring costs. *Id.* at 221-22.

⁸⁴ For instance, under the Kindle Store Terms of Use, Amazon grants the reader a non-exclusive right to view, use, and display Kindle books an unlimited number of times, solely on the Kindle or a reading application developed by Amazon. Amazon, Terms of Use, <http://www.amazon.com/gp/help/customer/display.html?nodeId=201014950> (last visited July 24, 2014).

⁸⁵ Bechtold, *supra* note 47, at 212.

Situations such as this one raise concerns regarding the “privatization” of copyright law. While copyright statutes try to balance public and private interests and are subject to public debate and scrutiny, the content provider, when designing his DRM system, can conveniently determine the reach of his protection unilaterally. “Thereby, content providers tend to protect their own interests in DRM systems without paying adequate attention to interests of users or the society at large.”⁸⁶⁻⁸⁷ Discussing the DRM systems by itself, however, is beyond the scope of this article, which aims to discuss only its effects on competition in the e-book market and how these effects impact access to knowledge.

3.4 DRM in the e-Book Market

3.4.1 Different DRM Schemes and Interoperability

DRM is a controversial subject, frequently pointed out as an obstacle to the full development of the e-book market. On one hand, the protection of digital books using DRM was necessary for the publishing industry to enable investment in the market without running the risk of seeing their catalogs available for free on the Internet.⁸⁸ On the other hand, the use of DRM in digital books has prevented access to books on certain devices. Specifically, the largest bookstores in the market use proprietary DRM systems compatible with a limited number of devices, which restricts the interoperability⁸⁹ of files.

⁸⁶ *Id.* at 225.

⁸⁷ Bechtold himself considers that the idea of content providers creating their own copyright could be an oversimplification, since contracts can be voided, technology defeated, and anti-circumvention protections limited in scope. When all of these steps fail, copyright holders can still rely on copyright protection, but, as it is important to note, not as their primary source of protection, only as a “safety net.” *Id.* at 226.

⁸⁸ Therefore, it is common that publishers (or authors, when negotiating directly) will negotiate DRM protection on the digital books with the bookstores. For instance, the agency contracts that Apple signed with the Big Six all had a clause stating that “Apple shall protect materials furnished by Publisher in a manner no less restrictive than Apple protects materials furnished by any other book publisher, including the use of the Security Solution, and the implementation and enforcement of Content Usage Rules, as set forth in Exhibit B. If the Security Solution is compromised such that eBooks are being made widely available without restriction, having a material adverse effect on the commercial purpose of the appointment and this Agreement, then Apple shall use commercially reasonable efforts to cure such compromise. If the breach is not substantially cured within thirty (30) days, then Publisher may stop providing additional New Releases to Apple, and if the breach is not substantially cured within sixty (60) days, then Publisher may suspend Apple’s appointment until cured.” “Security Solution” refers to Apple’s proprietary digital rights management solution marketed as “Fairplay.” These contracts are available at: <http://www.justice.gov/atr/cases/apple/apple-te.html>.

⁸⁹ By interoperability, we understand the proper functioning of elements of two or more means of access and use of digital content, which allows for different degrees. Depending on the point of view, interoperability can assume different meanings – for the reader, it is related to flexibility in the use of the file on different platforms; in the author’s perspective, it means that his books can be read on different devices; in the point of view of the publishers, it means that, once the rights are defined, the digital book can be distributed evenly to the most efficient bookstores; and to bookstores, it means that their technology choices will not affect the usefulness of the service. Gasser & John Palfrey, *supra* note 63, at 6-7.

According to Blasi and Rothlauf, tying the consumer to a digital book ecosystem threatens the system of distribution in the market and even the book culture, since, by joining one environment, the reader can no longer buy books from other bookstores in the future.⁹⁰ Two types of incompatibilities exist in digital books. The first relates to file extensions, and the second relates to the DRM system. The table below shows the formats supported by the main devices in the market:

DEVICE	FORMATS
Kindle	AZW, TPZ, TXT, MOBI, PRC, HTML e DOC
iPad	EPUB, PDF, HTML, DOC; besides other formats processed by specific applications
Nook	EPUB, CBZ, PDF
Sony Reader	BBeB, EPUB, PDF, TXT, RTF e DOC

TABLE 2 –Formats Supported by Main Devices⁹¹

Except for Amazon’s Kindle, all devices support EPUB files.⁹²⁻⁹³ EPUB, the current standard format for digital books, was developed by the International Digital Publishing Forum in 2007 with the goal of allowing publishers to produce a single digital book file for referral to the distribution channels, as well as offering flexible access for readers on different platforms.⁹⁴

⁹⁰ CHRISTOPH BLÄSI & FRANZ ROTHLAUF, ON THE INTEROPERABILITY OF EBOOK FORMATS 7, available at <http://eibf-booksellers.org/positionpaper/interoperability-e-books-formats> (2013).

⁹¹ Matt Buchanan, *Giz Explains: How You’re Gonna Get Screwed by Ebook Formats*, GIZMODO, Mar. 10, 2010, <http://gizmodo.com/5478842/giz-explains-how-youre-gonna-get-screwed-by-ebook-formats>; the websites of the companies examined.

⁹² “Apple supports the open EPUB standard [...] In general, eBooks in the EPUB format can be easily imported into Apple's ecosystem and displayed on Apple devices. However, Apple established a closed ecosystem, as all ebooks once developed or distributed inside the Apple world can never leave the ecosystem (except as PDF) and cannot be displayed or read on non-Apple devices. The main instrument for creating a closed ecosystem is its DRM system FairPlay, which controls the usage of content on Apple devices and which does not allow an export of content out of the Apple world.” Bläsi & Rothlauf, *supra* note 90, at 20-21.

⁹³ Although PDF is also widely accepted, it is not entirely a viable alternative to standard formats, since its fixed structure is not adaptable to the reading device’s screen. This feature, even if beneficial towards academic and scientific texts, makes it less convenient than other formats for general reading.

⁹⁴ Bläsi & Rothlauf, *supra* note 90, at 12.

Usually, incompatibility in file extensions can be avoided, for example by performing a file conversion. However, DRM-protected books cannot be altered, which means that the user cannot convert them into an extension compatible with his device. Also, to be readable, the file has to carry a compatible DRM format. The following table shows DRM systems adopted by main bookstores in the United States:

STORE	MARKET SHARE	DRM	COMPATIBLE READING DEVICES
Amazon	~65%	Amazon	Kindle; tablets or smartphones through Amazon's application
Apple	20-10%	Fairplay	iPad, iPhone, iPod
Barnes & Noble	20-10%	Proprietary DRM, variation of Adobe	Nook; tablets or smartphones through Barnes & Noble's application
Google	> 5%	Adobe	Sony Reader, Nook, Kobo, Aluratek, among others; tablets or smartphones through applications
Kobo	> 5%	Adobe	Sony Reader, Nook, Kobo, Aluratek, among others; tablets or smartphones through applications

TABLE 3 – DRM Systems in the U.S.⁹⁵

The Brazilian e-book market, on the other hand, is much more recent – most stores only initiated their operations in the country towards the end of 2012. As a result, the market configuration is considerably different:

⁹⁵ There is no precise information on e-book market shares. The market shares here given are approximations based on different sources. See, e.g., Laura Hazard Owen, *Citing Steve Jobs Email, DOJ Claims Apple Changed In-app Purchase to Retaliate Against Amazon*, GIGAOM, Aug. 23, 2013, <http://gigaom.com/2013/08/23/in-ebook-case-doj-claims-apple-is-lying-about-how-in-app-purchasing-works/>; Jack W. Perry, *BISG Report – A Few More Ebook Stats*, DIGITAL BOOK WORLD, Nov. 14, 2013, <http://www.digitalbookworld.com/2013/bisg-report-a-few-more-ebook-stats/>; Calvin Reid, *Macmillan's Sargent, Apple's Moerer Testify at the Apple Trial*, PUBLISHERS WEEKLY, June 12, 2013, <http://www.publishersweekly.com/pw/by-topic/industry-news/publisher-news/article/57787-macmillan-s-sargent-apple-s-moerer-testify-at-the-apple-trial.html>; Barnes & Noble, Annual Report 2012, http://www.barnesandnobleinc.com/for_investors/annual_reports/2012_bn_annual_report.pdf.

STORE	MARKET SHARE	DRM	COMPATIBLE READING DEVICES
Amazon	~30%	Amazon	Kindle; tablets or smartphones through Amazon's application
Apple	~30%	Fairplay	iPad, iPhone, iPod
Google	15-20%	Adobe	Sony Reader, Nook, Kobo, Aluratek, among others; tablets or smartphones through applications
Livraria Cultura	10-15%	Adobe	Sony Reader, Nook, Kobo, Aluratek, among others; tablets or smartphones through applications
Saraiva	~15%	Adobe	Sony Reader, Nook, Kobo, Aluratek, among others; tablets or smartphones through applications

TABLE 4 – DRM Systems in Brazil⁹⁶

The practical implications of these interoperability configurations depend on the store. For example, books purchased from Amazon can only be read on Kindle or through the Kindle App on tablets. The same goes for Barnes & Noble's Nook. Books purchased from Apple's iBookstore can only be read on Apple devices, but books from other stores can be read on Apple's devices through specialized applications. This possibility, however, also has drawbacks. For example, readers cannot purchase books through the apps in iOS systems.⁹⁷ Instead, they must access the bookstore through the browser application to

⁹⁶ As with the American e-book market, these values are approximations based on information gathered from different sources. *See, e.g.*, BOWKER MARKET RESEARCH AND BISG, GLOBAL EBOOK MONITOR 32 (2012); Raquel Cozer, *Painel Das Letras*, FOLHA DE S.PAULO, Dec. 15, 2012, <http://www1.folha.uol.com.br/fsp/ilustrada/83818-painel-das-letras.shtml>; Carlo Carrenho, Predicting the Winners and Losers in Brazil's Ebook War, PUBLISHING PERSPECTIVES, Jan. 2, 2013, <http://publishingperspectives.com/2013/01/predicting-the-winners-and-losers-in-brazils-ebook-war/>; Raquel Cozer, *Amazon Lança Leitor 'Top' e Cresce com Promoções*, FOLHA DE S.PAULO, Mar. 19, 2013, <http://www1.folha.uol.com.br/fsp/mercado/99340-amazon-lanca-leitor-top-e-cresce-com-promocoes.shtml>; RÜDIGER WISCHENBART, THE GLOBAL EBOOK MARKET: CURRENT CONDITIONS & FUTURE PROJECTIONS 62 (2013).

⁹⁷ This is the case because Apple charges a 30% fee for purchases made through applications, which led to Amazon, Barnes & Noble, and Kobo withdrawing their stores and keeping the apps only for reading books already purchased. An email from Steve Jobs to Eddy Cue on November 22, 2010 shows that this decision may have been in retaliation for an advertisement for Kindle in which a woman is first seen reading her books on an iPhone and then switching to an Android smartphone. This advertisement may have suggested to consumers that switching between those two devices is trivial. Laura Hazard Owen, *Citing Steve Jobs Email, DOJ Claims Apple Changed In-app Purchase to Retaliate Against Amazon*, GIGAOM, Aug. 23, 2013,

acquire books. Inconveniences such as this may seem minor, but they in fact have a tremendous impact on the success of a digital business.

Even where tablets designed by other companies are concerned, such as Samsung's Galaxy, which allows in-app purchases, interoperability still remains unsatisfactory. The reader continues to tackle the inconvenience of being unable to unify his library and remains subject to the application policy on his device, which may change at any time without any advance notice. Also, as the figure below shows, most of the portable reading devices used in the U.S. are from Amazon, Apple, or Barnes & Noble, which, combined with the market shares for e-book sales and policies regarding DRM, indicates significant closure in the e-book market.⁹⁸

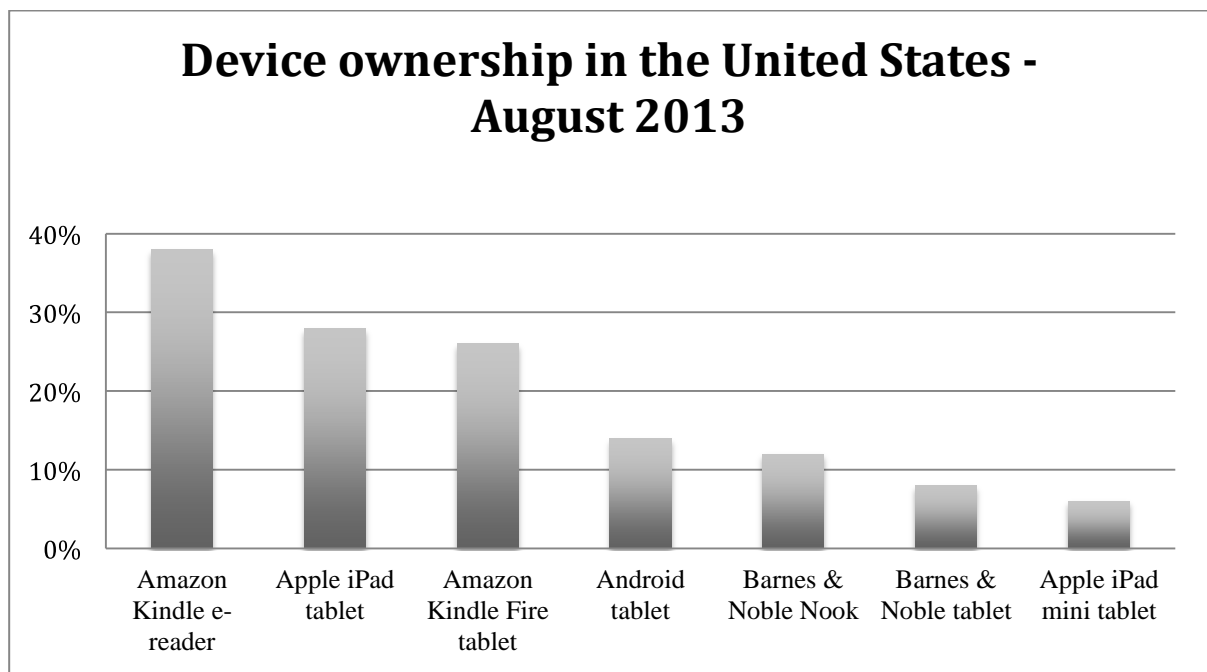


CHART 1⁹⁹

Closure, in the case of Brazil, is less apparent, since a considerable part of the market share is owned by Google, Saraiva, and Livraria Cultura/Kobo, and their books can be read on a greater number of devices. Still, Apple and Amazon play an important role, and the anticompetitive effects of DRM may impact the nascent market. For this reason, the

<http://gigaom.com/2013/08/>

[23/in-ebook-case-doj-claims-apple-is-lying-about-how-in-app-purchasing-works/](http://gigaom.com/2013/08/23/in-ebook-case-doj-claims-apple-is-lying-about-how-in-app-purchasing-works/).

⁹⁸ There is no recent data on the most used reading devices in Brazil.

⁹⁹ Chart based on information given by Jeremy Greenfield, *Kindle Most Popular Device For Ebooks, Beating Out iPad; Tablets On The Rise*, FORBES, Oct. 30, 2013, <http://www.forbes.com/sites/jeremygreenfield/2013/10/30/kindle-most-popular-device-for-ebooks-beating-out-ipad-tablets-on-the-rise/>.

following analysis will concentrate on Amazon and Apple, leaders in both the American and Brazilian markets, and eventually on Barnes & Noble, whose market share is very significant.

Consequently, while interoperability is not entirely absent, it is low, especially if we take into account the market shares of the bookstores. This scenario indicates that the use of DRM in digital books can lead to a consumer lock-in effect in an e-book ecosystem, resulting in increased network effects, barriers to entry, and switching costs – all market failures that can disrupt the smooth functioning of competition. These aspects will be studied further in Section 4.

3.4.2 *DRM and Piracy*

Even though DRM is a tool designed to avoid piracy, there is no proof that it is effective in doing so.¹⁰⁰ In fact, evidence suggests that the lack of DRM has not had a negative impact on sales. The prominent science-fiction publisher Tor, which went DRM-free in 2012, announced a year later that they have seen no increase in piracy after the change.¹⁰¹ Many European publishers are also going DRM-free or adopting less intrusive forms of copyright protection. For instance, the Netherlands's largest book publisher switched from DRM to watermarking on its catalog. At the same time, 65% of e-books available in Austria adopt watermarking, as well as 42% in Italy (compared to only 35% with DRM in both countries), and watermarking is also the preferred method in Hungary. In Sweden, virtually all trade e-books are DRM-free.¹⁰²

Also, a recent report regarding Amazon's e-book store shows that almost 100% of the "Big Five" publisher's e-books are DRM-protected, in contrast to only 50% of the e-books provided by indie publishers. In this context, "indie titles without DRM sell twice as many copies each, on average, as those without DRM". Comparison on the daily author earnings for bestselling indie titles with or without DRM showed that "DRM harms e-book sales at any price point."¹⁰³ These findings are not so surprising for those familiar with DRM's impacts on the music industry. Specifically, research shows that removing DRM on

¹⁰⁰ When it comes to analyzing piracy's effects, most research concludes that it does cause economic harm. For a general analysis of current research on piracy, *see generally* MICHAEL D. SMITH & RAHUL TELANG, *ASSESSING THE ACADEMIC LITERATURE REGARDING THE IMPACT OF MEDIA PIRACY ON SALES* (2012).

¹⁰¹ Julie Crisp, *DRM-free – A Year On*, TOR BOOKS, Apr. 25, 2013, <http://torbooks.co.uk/2013/04/25/drm-free-a-year-on/>.

¹⁰² Bill Rosenblatt, *E-Book Watermarking Gains Traction in Europe*, COPYRIGHT AND TECHNOLOGY, Oct. 3, 2013, <http://copyrightandtechnology.com/2013/10/03/e-book-watermarking-gains-traction-in-europe/>.

¹⁰³ Author Earnings, *supra* note 36.

digital music has increased sales by 10%, with the effect being most pronounced on less popular albums.¹⁰⁴ Of course, there are limits to generalizing this result to other industries. E-book consumption is significantly different from music consumption, especially regarding the time required. Also, music artists can rely on other sources of income, such as concerts and royalties from music streams, while an author's income derives mainly from book sales. However, such discoveries are still valuable in helping us analyze if the negative impacts of DRM studied here can be outweighed by the fulfillment of its goals.

4 COMPETITION

As we have seen in the last section, the largest booksellers adopt different proprietary DRM schemes on their digital books, and these schemes are not always compatible with the most used portable reading devices. We argue here that this lack of interoperability is causing anti-competitive effects on this market, which will now be examined.

4.1 Network Effects

The e-book market is part of what is often called the “information economy” or “new economy.” Unlike traditional industries, characterized by “multiform production [...], stable markets, heavy capital investment, modest rates of innovation, and slow and infrequent entry and exit,” the new economy industries generally manifest “falling average of costs [...] over a broad range of output, modest capital requirements [...], very high rates of innovation, quick and frequent entry and exit, and economies of scale in consumption (also known as ‘network externalities’).”¹⁰⁵ Moreover, vertical integration is even more common in new economy industries than in traditional industries, and firms are frequently suppliers or customers of their competitors. Where market analyses are concerned, these characteristics may render the application of traditional antitrust concepts insufficient.

A common, though not exclusive,¹⁰⁶ characteristic of these industries is the presence of networks. Such networks can be physical (as in telecommunications infrastructure) or

¹⁰⁴ Laurina Zhang, *Intellectual Property Strategy and the Long Tail: Evidence from the Recorded Music Industry*, University of Toronto Rotman School of Management, at 20 (2013), http://inside.rotman.utoronto.ca/laurinazhang/files/2013/11/laurina_zhang_jmp_nov4.pdf.

¹⁰⁵ RICHARD A. POSNER, *ANTITRUST LAW* 245-46 (2d ed. 2001).

¹⁰⁶ As Liebowitz warns, network externalities are not a privilege of technology. For instance, if people choose to move to a bigger city because the larger market will assure a greater quantity and diversity of entertainment options, this is an audience-network externality. Stan J. Liebowitz & Stephen E. Margolis, *Network Externality: An Uncommon Tragedy*, *THE JOURNAL OF ECONOMIC PERSPECTIVES* 133, 134 (1994).

virtual (as in a network of computers running the same operating system).¹⁰⁷ These networks often cause effects that fall under the antitrust umbrella. Strictly speaking, network effects are “circumstance[s] in which the net value of an action (consuming a good, subscribing to a telephone service) is affected by the number of agents taking equivalent actions.”¹⁰⁸ Liebowitz differentiates network effects from networks externalities, the latter being “a specific kind of network effect in which the equilibrium exhibits unexploited gains from trade regarding network participation.”¹⁰⁹ In this case, consumers will benefit from changes in quantities demanded, which can result from factors such as “compatibility, brand familiarity, product information, status, service availability or the prices of network related goods.”¹¹⁰

Network externalities, in turn, can be categorized as direct or indirect. According to Katz and Shapiro, network externalities “may be generated through a direct physical effect on the number of purchasers on the quality of the product.”¹¹¹ For instance, consumers directly benefit from more people joining a communication network, since they will have more people to talk to¹¹² (e.g., more users on a telephone network or more speakers of a certain language). Thus, adoption by different users is complementary – each user’s incentive to adopt a network increases as more other users join in,¹¹³ and the benefits of that network are directly related to the amount of users connected to that network.

Indirect network externalities, on the other hand, “arise through improved opportunities to trade with the other side of a market.”¹¹⁴ In other words, more users on that network translate to more complementary goods available, which will indirectly benefit that network. For instance, the DVD consumption of one user is irrelevant to that of another user, but it is beneficial in the sense that it “stimulates supply of additional DVD films.”¹¹⁵ Social networks or dating platforms, such as Facebook and OkCupid, benefit from more

¹⁰⁷ Leandro Saito, *Desafios da Intervenção Antitruste em Indústrias de Rede*, 1 REV. DEF. CONCORR. 197, 198-99 (2013).

¹⁰⁸ Stan J. Liebowitz & Stephen E. Margolis, *Network Externality: An Uncommon Tragedy*, THE JOURNAL OF ECONOMIC PERSPECTIVES 133, 135 (1994).

¹⁰⁹ *Id.* at 135. However, both terms are often used interchangeably.

¹¹⁰ *Id.* at 134.

¹¹¹ Michael L. Katz & Carl Shapiro, *Network Externalities, Competition, and Compatibility*, 75 AM. ECON. REV. 424, 424 (1985).

¹¹² George L. Priest, *Rethinking Antitrust Law in an Age of Network Industries*, YALE LAW ECON. RES. PAP. No. 352 3 (2007).

¹¹³ Joseph Farrell & Paul Klemperer, *Chapter 31: Coordination and Lock-In: Competition with Switching Costs and Network Effects*, 3 in HANDBOOK OF INDUSTRIAL ORGANIZATION 1967, 1974 (2007).

¹¹⁴ *Id.*

¹¹⁵ George L. Priest, *Rethinking Antitrust Law in an Age of Network Industries*, YALE LAW ECON. RES. PAP. No. 352 3 (2007).

users joining because previous users will be more likely to find their match. In the same sense, indirect network effects are present when a user decides to buy a computer using a more popular operating system, because there will be a larger quantity and variety of software available.

In markets with network effects, a lack of interoperability often benefits the dominant network [, especially if intellectual property is involved. For example, if the dominant word processing software only runs on a specific operating system, and its associated documents cannot be opened in any other software, consumers will tend to buy computers that can run that specific operating system. Otherwise, the sharing of documents, for personal or business purposes, will be seriously impaired. Some scholars consider this a factor in the growth of differentiation in technological standards among competitors, since, in this context, non-interoperability becomes a business strategy.¹¹⁶⁻¹¹⁷

Network effects are especially common in two-sided markets such as most online businesses. In these markets, a platform usually performs three functions – they (1) serve as an intermediary to facilitate exchange between two different groups; (2) build an audience, allowing members of one group to find a suitable match in the other group; or (3) “provide shared resources and reduce the cost of providing services to multiple groups of customers.”¹¹⁸ For example, in the e-book market, we have a platform (the e-book store) through which consumers will access digital books and in which authors and editors will sell their works. The more popular the store is, the more authors and publishers will want to offer their titles there (and, therefore, the more books will be digitalized). Similarly, the broader the store’s selection of titles, the more attractive it will be to readers.¹¹⁹ These indirect network effects are amplified by the lack of interoperability and the use of exclusivity clauses, as explained in Section 5.1.4. At the same time, we also observe direct network effects in the e-book market. As with communication networks, readers may take

¹¹⁶ Saito, *supra* note 107, at 202.

¹¹⁷ “We have pointed out that links on a network are potentially complementary, but it is compatibility that makes complementarity actual. Some network goods and some vertically related goods are immediately combinable because of their inherent properties. However, for many complex products, actual complementarity can be achieved only through the adherence to specific technical compatibility standards. Thus, many providers of network or vertically related goods have the option of making their products partially or fully incompatible with components produced by other firms. This can be done through the creation of proprietary designs or the outright exclusion or refusal to interconnect with some firms.” Nicholas Economides, *The Economics of Networks*, 14 INT. J. IND. ORGAN. 673, 676-77 (1996).

¹¹⁸ David S. Evans, *Antitrust Issues Raised by the Emerging Global Internet Economy*, 102 N.W. U. L. REV. 1987, 1995 (2008).

¹¹⁹ Yabing Jiang, *e-Book Platform Competition in the Presence of Two-sided Network Externalities*, in 2012 SYSTEM SCIENCE 45TH HAWAII INTERNATIONAL CONFERENCE ON SYSTEM SCIENCES 4777, 4782 (2012).

into account that the more users an e-book ecosystem has, the more options they will have to share their books with friends and family through lending programs. As another example, companies have more incentives to enhance e-book reading devices and provide better customer service.¹²⁰

Another common practice with multi-sided platforms is the concentration of revenue expectancy on one side of the network and the practice of low prices on the other to attract customers. This tactic is common in the printer business (where printers are relatively affordable but toners are expensive) and the search engine business (where searching is free but advertisements are paid for).¹²¹

Considering these aspects, network effects can frequently increase barriers to entry, helping to form or maintain monopolies. For this reason, network markets tend to have few, but large, competitors or even a monopolist (“the winner takes all”), especially where interoperability is involved, since companies compete to become the *de facto* standard. However, these circumstances are not necessarily harmful. As we know, antitrust law does not penalize concentration or even monopolies *per se*. In network markets, monopolies or oligopolies can even benefit consumer welfare, by translating into more complementary goods, for example. However, concentration can be particularly worrying in a market that deals with knowledge and information circulation.

4.2 Switching Costs

Another characteristic common, though not exclusive, to the information economy is switching costs. These costs are faced by the consumer when changing suppliers, platforms, or products and include the cost of money and time.¹²² They can be physical, usually arising out of compatibility needs, for example when consumers have to buy replacement parts (like razors and ink cartridges)¹²³ or complementary goods (such as software or camera lens). They can also derive from setting up a relationship with new suppliers, such as the cost of replacing equipment when switching to a different cable TV operator. There are also informational switching costs, often related to the cost of learning how to use a new product or gathering information about it. For example, the use of

¹²⁰ We do not consider the decrease in e-book prices a network effect, but rather a consequence of technological advances (i.e., the fact that digital files can be copied for marginally no cost). Liebowitz and Margolis, *supra* note 108, at 139.

¹²¹ Saito, *supra* note 107, at 203.

¹²² Aaron S. Edlin & Robert G. Harris, *The Role of Switching Costs in Antitrust Analysis: A Comparison of Microsoft and Google*, 15 YALE J. LAW TECHNOL. 169, 176 (2013).

¹²³ *Id.* at 178.

complex software may require considerable training. Similarly, changing banks often involves substantial research into interest rates, fees, and ATM availability. Finally, switching costs can be psychological, when stemming from factors such as brand-loyalty or related to discount coupons or loyalty programs.¹²⁴

According to Farrell and Klemperer, switching costs can diminish social surplus but increase firms' income.¹²⁵ This happens because high switching costs can generate a lock-in effect, since users may prefer to stay in the same ecosystem rather than give up what they already invested.¹²⁶ For instance, in an antitrust case brought against Microsoft, the district court found that "consumers would not switch from Windows to Mac OS in response to a substantial price increase because of the costs of acquiring the new hardware needed to run Mac OS (an Apple computer and peripherals) and compatible software applications, as well as because of the effort involved in learning the new system and transferring files to its format."¹²⁷

Thus, switching costs can prevent customers from "changing suppliers in response to (predictable or unpredictable) changes"¹²⁸ in the market and "often obstructs efficient buyer-seller matching,"¹²⁹ generally leading to price increases and creating deadweight losses.¹³⁰ Depending on their scope, switching costs can also become a barrier to entry, since "entrants lack installed bases and consumers' expectations may naturally focus on established firms."¹³¹ Combined with network effects, these costs can reduce competitiveness and lead to oligopolistic and even monopolistic markets.¹³²

It is true that certain switching costs are inherent, arising from the nature of products in the market.¹³³ However, keeping in mind the process we just described, firms often make the deliberate and strategic choice to create unnecessary switching costs or to increase the magnitude of existing ones for their own benefit.¹³⁴ One of the simplest ways to raise

¹²⁴ Paul Klemperer, *Competition When Consumers Have Switching Costs: An Overview with Applications to Industrial Organization, Macroeconomics, and International Trade*, 62 REV. ECON. STUD. 515, 517-18 (1995).

¹²⁵ Farrell and Klemperer, *supra* note 113, at 2002.

¹²⁶ This can happen even if potential gains from the switch outnumber the losses, since people tend to avoid loss.

¹²⁷ *Microsoft*, 253 F.3d at 52; *United States v. Microsoft Corp.*, 87 F.Supp.2d 30, 36 (D.D.C. 2000).

¹²⁸ Farrell and Klemperer, *supra* note 113, at 1970.

¹²⁹ *Id.* at 1972.

¹³⁰ Klemperer, *supra* note 124, at 536.

¹³¹ Farrell and Klemperer, *supra* note 113, at 1972.

¹³² Klemperer, *supra* note 124, at 536.

¹³³ Edlin and Harris, *supra* note 122, at 176.

¹³⁴ Klemperer, *supra* note 124, at 534.

switching costs is by creating compatibility issues through technological barriers.¹³⁵ This is the case with switching costs in the e-book market. For instance, if a Barnes & Noble customer decides to change to Amazon, setting his Nook aside and acquiring a Kindle, he will find that the books he previously bought will be inaccessible on his new reading device. Although customers from Barnes & Noble and Amazon may find it easier switching to Apple, since previous books can be read on the appropriate applications, they will learn that the books they acquire on iBookstore can only be read on Apple products, without exceptions.¹³⁶ We can add to this the psychological effect related to the emotional value that readers frequently attribute to their libraries.

The overall extent of switching costs in a particular industry is frequently related to the compatibility or incompatibility choices made by early entrants, which “can shape the development of the market and make it difficult for later entrants to choose a low switching cost approach.”¹³⁷ In the case of the e-book market, Amazon opted from early on to adopt a proprietary format and DRM scheme, which may have forced future competitors to come up with a suitable device for their e-books.

Overall, switching costs, although not always significantly harmful, can frequently impair competition, especially when combined with network effects.¹³⁸ Moreover, artificially creating switching costs, such as through the adoption of new formats and DRM schemes in the e-book market, is not only expensive but also reduces competition and dissipates social surplus.¹³⁹ Consequently, some scholars suggest that public policy should aim to reduce switching costs. As Farrell and Klemperer state, “markets may indeed perform less well with switching costs than without, so policy intervention to reduce switching costs may be appropriate. For example, policy might cautiously override intellectual property rights, especially of copyright-like intellectual property that may have little inherent novelty, if those rights are used only as a tool to enforce incompatibility and so create private rewards that bear no relationship to the innovation’s incremental value.”¹⁴⁰

¹³⁵ Farrell and Klemperer, *supra* note 113, at 2001.

¹³⁶ This Apple strategy of combining compatibility with incompatibility is not limited to e-books. On one hand, the company “has chosen to open the development of iPhone and iPad apps to independent, third-party developers. However, Apple has also chosen to close the distribution and sale of those apps to its App Store, and requires approval of the app prior to its sale. The net effect is that there are very high user switching costs from the Apple ecosystem to another ecosystem (e.g., Android), but very low/no switching costs within Apple’s ecosystem (e.g., one app to a similar app).” Edlin and Harris, *supra* note 122, at 179-80.

¹³⁷ *Id.* at 179.

¹³⁸ Farrell and Klemperer, *supra* note 113, at 2005.

¹³⁹ Klemperer, *supra* note 124, at 536.

¹⁴⁰ Farrell and Klemperer, *supra* note 113, at 2006.

In addition, research demonstrates that “when products are artificially differentiated by switching costs, firms’ incentives to differentiate their products in any real, functional, way are reduced.”¹⁴¹ This situation can easily apply to the e-book market, where there is little reason aside from business strategy for the lack of interoperability.

4.3 Barriers to Entry

Barriers to entry can be defined as “a condition that imposes higher long-run costs of production on a new entrant than are borne by the firms already in that market.”¹⁴² Especially in network industries, competitors in dominant positions tend to use a series of restrictions as obstacles to hinder new competitors from entering in order to maintain their market power.¹⁴³ Examples of such restrictions include denying access to the necessary infrastructure in the industry or using intellectual property rights on technological components. Theoretically, in a market with few barriers to entry, the dominant company cannot exercise its market power abusively, since actual or potential competitors, attracted to profits, can set more competitive conditions to attract consumers.¹⁴⁴ However, if barriers to entry are artificially increased, the market cannot discipline itself.

Strong network effects can be, *per se*, barriers to entry, but such effects can still benefit social welfare in certain occasions. On the other hand, in markets with weak network effects, where its the benefits have limited scope, anticompetitive practices may be adopted to increase barriers to entry and prevent useful competition.¹⁴⁵ In the e-book market, for example, the fact that the Kindle does not support the open EPUB format and is not compatible with the popular Adobe DRM, added to the fact that Amazon’s proprietary formats and DRM schemes are unlicensed, can be seen as an artificial barrier to entry. Specifically, other booksellers that join this market will not be able to sell books capable of being read on the most popular reading device, and companies that build other devices will not be able to support Amazon’s e-books.

As previously mentioned, entry conditions can also be affected by switching costs, since the entrant must find a way to convince customers to pay that cost. As a result,

¹⁴¹ Klemperer, *supra* note 124, at 516.

¹⁴² Posner, *supra* note 105, at 74.

¹⁴³ Saito, *supra* note 107, at 214.

¹⁴⁴ PAULA A. FORGIONI, OS FUNDAMENTOS DO ANTITRUSTE 334 (3d ed. 2005).

¹⁴⁵ Mark Lemley & David McGowan, *Legal Implications of Network Economic Effects*, 86 CALIF. LAW REV. 479, 504 (1998).

latecomers will face difficulties joining the market.¹⁴⁶ For instance, a new device developer would have to convince iBookstore's customers to leave all their books behind, since Fairplay DRM does not permit them to be read anywhere else besides Apple's environment. Similarly, Amazon users would have to give up their books if switching to another e-reader.

4.4 Considerations Regarding Competition Restriction

DRM in the e-book market causes serious interoperability issues that cannot be solved by the user, as such actions would be penalized by anti-circumvention laws. The problem is that "while incompatibility does not necessarily damage competition, it often does."¹⁴⁷⁻¹⁴⁸ However, some scholars might argue that there is no need to worry about the circumstances described here, because monopolies in very dynamic markets such as new economy industries are unsustainable in the long run, where there is a permanent competition *for* the market (instead of *in* the market).

Those industries would face a form of Schumpeterian competition, where the potential to become a monopolist is an enormous motivation for firms to invest in creations innovative and useful enough to take over the market, which offer extreme profit opportunities. In this sense, inoperability is seen as an incentive for innovation. According to Posner, "a firm that will have the protection both of intellectual-property law and of economics of scale in consumption if it is the first to come up with an essential component of a new-economy product or service will have a lucrative monopoly, and this prospect should accelerate the rate of innovation, just as, other things being equal, the more valuable a hoard of buried treasure is, the more rapidly it will be recovered. [...] The prospect of obtaining a network monopoly should thus induce not only a high rate of innovation but also a low-price strategy that induces not only a high rate of innovation but also a low-price strategy that induces early joining and compensates the early joiners for the fact that eventually the network entrepreneur may be able to charge a monopoly price."¹⁴⁹

Nevertheless, even if we agree that network effects, switching costs, and barriers to entry can end up having a beneficial impact on innovation and competitiveness, we should

¹⁴⁶ Farrell and Klemperer, *supra* note 113, at 1974.

¹⁴⁷ *Id.* at 1972.

¹⁴⁸ Three cases serve as an example of how DRM and anti-circumvention laws can be used to suppress competition: Sony Computer Entertainment America Inc. v. GameMasters; Lexmark International, Inc. v. Static Control Components, Inc.; and Chamberlain Group, Inc. v. Skylink Technologies, Inc. Rothchild, *supra* note 57, at 509-12.

¹⁴⁹ Posner, *supra* note 105, at 249.

consider if Schumpeterian competition is desirable regardless of the market, and, moreover, if the market for books should be subject to such a process. In the next section, we will argue that competition restrictions in the e-book market can diminish the positive potentials of these technologies as well as compromise access to knowledge and information.

5 ACCESS TO BOOKS

The e-book market faces numerous competition restrictions that are either imposed or amplified by the use of incompatible DRM schemes on e-books. Some recent events in the e-book market that diminish and restrict access to e-books may have been triggered by such restrictions.

5.1 Tilling the Walled Garden

5.1.1 Refusals to Sell e-Books from Certain Publishers Due to Negotiations Disagreements

To better understand the context in which two of these refusals were made, we must examine the negotiating landscape in 2009. By the end of 2008, Amazon controlled 90% of the e-book market and 60% of the e-reader market.¹⁵⁰ A number of factors can be attributed this success, including the lack of big competitors, the extensive knowledge of the company concerning the book selling business, and, in particular, low prices. Specifically, Amazon sold most of the bestsellers at \$9.99, which was possible because wholesale agreements permitted bookstores to set prices at their own convenience. Because this price was significantly lower than that of physical books, publishers began to worry. They feared that low prices would lead to one market devouring the other, diminish the perceived value of books, and also force publishers to lower the list price of e-books.

Thus, when Apple launched the iPad and decided to enter the e-book market, publishers eyed an opportunity to change the playing field. Negotiations between Apple and the publishers eventually led to agency agreements including the following key points: (1) publishers would set the final e-book price; (2) the price offered in other stores could not be lower than the price offered at the iBookstore (Most Favored Nation Clause); (3) Apple would get 30% in commission for each e-book sold; and (4) iBookstore price levels would be identical for all publishers. Practically, the Most Favored Nation Clause forced publishers to adopt agency agreements with other bookstores. Otherwise, Apple would be

¹⁵⁰ OECD, *supra* note 4, at 28.

authorized to match any lower prices set by other bookstores and pay the publisher only 70% of that final price, whatever it may have been.¹⁵¹⁻¹⁵²

On January 28, 2009, Macmillan's CEO John Sargent presented Amazon with these new terms, which would obviously lead to an increase in e-book prices. Unhappy with the negotiation, Amazon disabled that same night the buy buttons for all of Macmillan's titles – both digital and physical.¹⁵³ The buttons were restored a few days later. Despite Amazon's resistance, all of the big publishers except for Random House decided to change to agency contracts. Due to Random House's opposition in changing business models, their books were sold not in the iBookstore, but instead as separate e-book apps in Apple's App Store. In the fall of 2010, however, Apple pressured the publisher to sign a deal with iBookstore by rejecting several of its apps submitted for sale in the App Store.¹⁵⁴ Random House ended up undertaking negotiations for an agency agreement and started selling its titles in iBookstore in February 2011.

In a separate set of negotiations disagreements, Amazon removed all of Independent Publishers Group's digital books from its store in 2012.¹⁵⁵ The dispute was settled three months later.¹⁵⁶ Recently, Amazon has entered in another polemic. Due to disagreements with Hachette over e-book pricing, Amazon has started to cease discounts on Hachette's digital books and deliberately delay the shipment of their physical books, as well as remove

¹⁵¹ It is interesting to note that under the agency model, publishers would get more control over the final price of e-books, but would be paid less. "Under that model [wholesale], it was common for a large publisher like Penguin to charge a wholesale price of roughly \$13.00 for the e-book version of a new hardcover title. While Amazon would incur a loss if it resold the e-book for \$9.99, Penguin would still receive \$13.00. Under the agency model, in contrast, Amazon was forced to charge a higher retail price, say \$12.99, but because Apple insisted that the agency model provide a commission of 30 percent, the per unit revenue Penguin would receive would be just \$9.09.71 Worse, because the agency model resulted in higher retail prices, the number of units sold, relative to what they would have been under the wholesale model, fell." John B. Kirkwood, *Collusion to Control a Powerful Customer: Amazon, E-Books, and Antitrust Policy*, U. MIAMI L. REV. (Forthcoming 2014).

¹⁵² These agreements led to an investigation into the existence of a price fixing cartel by Apple, Hachette Book Group, HarperCollins, Macmillan, Penguin, and Simon & Schuster. The five publishers settled, while Apple proceeded to trial. The analysis of this lawsuit, however, is beyond the scope of this paper.

¹⁵³ Albanese, *supra* note 25, at 44.

¹⁵⁴ *Id.* at 49.

¹⁵⁵ David Streitfield, *Amazon Pulls Thousands of E-Books in Dispute*, THE NEW YORK TIMES, Feb. 22, 2012, <http://bits.blogs.nytimes.com/2012/02/22/amazon-pulls-thousands-of-e-books-in-dispute/>.

¹⁵⁶ Jeffrey A. Trachtenberg, *Amazon, Publisher Settle Digital Books Dispute*, WALL STREET JOURNAL, May 25, 2012, http://online.wsj.com/news/articles/SB10001424052702304840904577426830792316616?mod=rss_whats_news_us&mg=reno64-wsj&url=http%3A%2F%2Fonline.wsj.com%2Farticle%2FSB10001424052702304840904577426830792316616.html%3Fmod%3Drss_whats_news_us.

some buy buttons and suggest that users buy similar books from other publishers.¹⁵⁷ This quarrel is ongoing.

We should notice that this practice is not restricted to digital books. Negotiations disagreements over the distribution of physical books have resulted in low stock on previous occasions.¹⁵⁸ However, in those situations, consumers might still be able to buy some books despite diminished stocks, which is not the case when the buy button is disabled. Also, with physical books, consumers are able to go to the closest bookstore and find what they are looking for. For digital books, however, the negative impacts of negotiations disagreements are exacerbated by the fact that during the period, readers that are locked into an ecosystem will be unable to access e-books from whichever publisher the bookseller has problems with.

These situations can also be considered a perfect example of the exercise of buyer power. Buyer power is “the circumstance in which the demand side of a market is sufficiently concentrated that buyers can exercise market power over sellers,, for instance forcing sellers to reduce prices, and can emerge from monopsonies or oligopsonies.¹⁵⁹ In this case, the oligopolistic structure of e-book market is related not only to a combination of competitive advantages but also to the effects of DRM on competition. Because DRM tends to enlarge network effects and barriers to entry, the market tends to be an oligopoly, such that publishers will find it too costly not to be in any of the stores.

5.1.2 *Rejecting and Removing Books from Stores Due to Content*

There are also numerous examples of bookstores rejecting or removing books due to content. For example, in October 2013, several stores such as Amazon, Kobo, and Barnes & Noble removed self-published e-books with erotic content.¹⁶⁰ Although there were claims that some of the books contained incest and rape scenes, other reports related

¹⁵⁷ Fahrad Manjoo, *Amazon's Tactics Confirm Its Critics' Worst Suspicions*, THE NEW YORK TIMES, May 23, 2014, <http://bits.blogs.nytimes.com/2014/05/23/amazons-tactics-confirm-its-critics-worst-suspicions/>.

¹⁵⁸ Leslie Kaufman, *Barnes & Noble-Simon & Schuster Dispute Said to Hurt Sales*, THE NEW YORK TIMES, March 22, 2013, <http://www.nytimes.com/2013/03/23/books/barnes-noble-simon-schuster-dispute-said-to-hurt-sales.htm>.

¹⁵⁹ Roger G. Noll, “*Buyer Power*” and *Economic Policy*, ANTITRUST L. J. 589, 589 (2005).

¹⁶⁰ Rachel Deahl, *INDIE AUTHORS LAUNCH PETITION REACTING TO RETAILERS' CENSORSHIP* PUBLISHERSWEELY.COM, <http://www.publishersweekly.com/pw/by-topic/digital/retailing/article/59576-indie-authors-launch-petition-reacting-to-retailers-censorship.html> (last visited Jul 23, 2014).

instances of stories being removed based on keywords such as “daddy.”¹⁶¹ Kobo went as far as removing all self-published titles from its UK bookstore.

Amazon has also rejected the publication of a bilingual children’s picture book because it was written in Cornish, a Brittonic Celtic language spoken by the Cornish people.¹⁶² There were no technical reasons for the rejection, since Cornish uses the same alphabet as the English language. As a language that faces the risk of extinction, its use in a children’s book serves a crucial role in preserving the culture of the Cornish community that endures. The company has also been accused of rejecting the book “Princess Lara” by the artist David Uzal due to the fact that the book cover portrayed a painting of a naked woman. A few days afterwards, however, Amazon stepped back and allowed the book to be published on its website¹⁶³.

Apple is not immune to these criticisms either. The company rejected an e-book reader application from the App Store because it potentially offered access to a text-only version of the Kama Sutra (which other approved e-book reading apps could do as well), a decision that was later reversed.¹⁶⁴ In addition, Apple went as far as rejecting Seth Godin’s book because its links in the bibliography directed the reader to Amazon.¹⁶⁵ Without going into the merits of immoral content, this situation raises concerns, since in many cases such bookstores are the only link between authors and readers of e-books. As Godin puts it, “once you are reading your books on a device that is hooked into a store, the person curating the store has a great deal more power than a local bookseller ever did.”¹⁶⁶

5.1.3 *Deleting Books from Users’ Devices*

Another problem, this time directly related to the use of DRM on e-books, is the deletion of books from users’ libraries. The most famous case was the ironic erasing of Orwell’s “1984” and “Animal Farm,” due to the fact that the company that added the books

¹⁶¹ Dalia Daudelin, THROWING THE BABY OUT WITH THE BATHWATER: CENSORSHIP IN SELF PUBLISHING IS ON THE RISE DALIA DAUDELIN, <http://daliadaudelin.com/blog/2013/10/16/throwing-the-baby-out-with-the-bathwater-censorship-in-self-publishing-is-on-the-rise> (last visited Jul 23, 2014).

¹⁶² Glyn Moody, AMAZON REFUSES TO PUBLISH FIRST CORNISH-LANGUAGE EBOOK TECHDIRT., <https://www.techdirt.com/articles/20130402/04333522547/amazon-refuses-to-publish-first-cornish-language-ebook.shtml> (last visited Jul 23, 2014).

¹⁶³ Juliana Gragnani, *E-book com pintura de mulher nua na capa é recusado pelo site da Amazon*, FOLHA DE SÃO PAULO, May 3, 2014, <http://www1.folha.uol.com.br/ilustrada/2014/05/1448906-e-book-com-pintura-de-mulher-nua-na-cap-e-recusado-pelo-site-da-amazon.shtml> (last visited Jul 21, 2014).

¹⁶⁴ Steven Musil, APPLE CHANGES MIND ON REJECTED E-BOOK READER APP CNET, <http://www.cnet.com/news/apple-changes-mind-on-rejected-e-book-reader-app/> (last visited Jul 23, 2014).

¹⁶⁵ Seth Godin, WHO DECIDES WHAT GETS SOLD IN THE BOOKSTORE? GIGAOM (2012), <http://gigaom.com/2012/02/28/419-who-decides-what-gets-sold-in-the-bookstore/> (last visited Jul 23, 2014).

¹⁶⁶ *Id.*

to the Kindle Store did not have rights to the work.¹⁶⁷ This eventually led to a class action, which was settled in September 2009. Some reports also describe the erasure of books on Nook devices and their subsequent restoration, but without notes and highlights¹⁶⁸. These situations serve as examples of the tremendous control that bookstores can exercise over acquired content and how bookstores can unilaterally act to restrict e-book access.¹⁶⁹⁻¹⁷⁰

5.1.4 Exclusivity Contracts

Another important aspect of access restriction due to the lack of interoperability concerns exclusivity contracts between bookstores and authors. Although there are a number of independent self-publishing platforms, most authors are now choosing to publish directly through platforms offered by bookstores such as Amazon, Apple, and Barnes & Noble.

Amazon, for instance, offers Kindle Direct Publishing (“KDP”), where the store charges a 30% fee and authors can earn 70% in royalties. Authors self-publishing on Amazon can choose to participate in the KDP Select, in which case their books will be available on programs such as Kindle Unlimited, Amazon’s subscription service, and Kindle Owner’s Lending Library, a selection of books from which Amazon Prime members can choose one for free once per month. Because KDP Select offers more opportunities to reach the audience and maximize royalties, it is the primary choice for self-publisher authors. However, Amazon requires KDP Select’s books to be exclusive to Amazon.¹⁷¹ In comparison, authors can also choose to publish their books in the iBookstore, in which case the book has to be in .EPUB or .ibooks format. The .ibooks format is created through

¹⁶⁷ Brad Stone, *Amazon Erases Orwell Books From Kindle*, THE NEW YORK TIMES, July 18, 2009, <http://www.nytimes.com/2009/07/18/technology/companies/18amazon.html>.

¹⁶⁸ Mike Masnick, *Yet Another Reminder That You Don’t Own Your Ebooks: B&N Nook Deletes Files, Blames User*, TECHDIRT, <https://www.techdirt.com/articles/20101026/16554111596/yet-another-reminder-that-you-don-t-own-your-ebooks-b-n-nook-deletes-files-blames-user.shtml>.

¹⁶⁹ Seringhaus, *supra* note 31, at 154.

¹⁷⁰ We should point out that in some cases, the disappearance of books from the device has to do with discontinuation of services. This situation, however, is more related to problems arising from licensing content than to the e-book market. For examples of such occurrences, *see* Cory Doctorow, *Ebook DRM Provider Goes Dark, The Books You Paid for Disappear*, BOING BOING, Jan. 8, 2009, <http://boingboing.net/2009/01/08/ebook-drm-provider-g.html>; Bill Rosenblatt, *Overdrive to Cease E-Book Delivery for Fictionwise*, COPYRIGHT AND TECHNOLOGY, Jan. 14, 2009, <http://copyrightandtechnology.com/2009/01/14/overdrive-to-cease-e-book-delivery-for-fictionwise/>; *Sony to Close E-bookstore, Move Customers to Kobo*, PUBLISHERS WEEKLY, Feb. 6, 2014, <http://www.publishersweekly.com/pw/by-topic/digital/retailing/article/60946-sony-to-close-e-bookstore-move-customers-to-kobo.html>.

¹⁷¹ This information can be found in the Kindle Direct Publishing Terms and Conditions (<https://kdp.amazon.com/help?topicId=APILE934L348N>).

Apple's software, iBooks Author, and requires the book to be published only in iBookstore if any fee is charged. If the book is distributed for free, it can be in other stores even if it adopts the .ibooks format.¹⁷² Authors choosing to publish through Nook Press, on the other hand, are not limited by exclusivity clauses.

Non-self-published authors are also subject to exclusivity agreements. For instance, Amazon also had, for a while, the exclusive right to sell the electronic edition of the best-seller "The 7 Habits of Highly Effective People," as well as another Stephen R. Covey title, "Principle-Centered Leadership."¹⁷³ Other examples of Kindle's exclusive books are Kurt Vonnegut's "Basic Training" and Andy Borowitz's "An Unexpected Twist."

Although exclusivity contracts cover a smaller number of works, its impact should not be overlooked. For example, in March 2012, 16 of the 100 best-selling books in the Kindle Store were exclusive to Amazon.¹⁷⁴ In other words, 16 out of the 100 most searched books at that time were unavailable to Nook or Kobo owners and could only be accessed by iPad owners through Amazon's app.

5.1.5 Impact on Indie Booksellers

Independent booksellers and even large book chains have been struggling for a long time, so digital reading cannot be held entirely accountable. The American Booksellers Association reports that "the number of independent booksellers has declined from 3,250 to 1,400 since 1999,"¹⁷⁵ representing roughly 10 percent of the market, although this number has been increasing in the last couple of years.¹⁷⁶ However, by offering personalized services and support to talented emerging authors and often cultural and literary events, these stores play a fundamental role in the burgeoning of book culture. It is for no other reason that France has passed the so-called "anti-Amazon" law prohibiting stores from

¹⁷² Information available on Authors & Book Publishers: Frequently Asked Questions (<http://www.apple.com/itunes/working-itunes/sell-content/books/book-faq.html>) and iBooks Author: Publishing and distribution FAQ (<http://support.apple.com/kb/HT5071>)

¹⁷³ Brad Stone & Motoko Rich, *Top Author Shifts E-Book Rights to Amazon.com*, THE NEW YORK TIMES, December 15, 2009, <http://www.nytimes.com/2009/12/15/technology/companies/15amazon.html>.

¹⁷⁴ Amazon, *16 of the Top 100 Best-Selling Paid Kindle Books in March Are Exclusive to the Kindle Store and Available for Prime Members with a Kindle to Borrow for Free*, AMAZON MEDIA ROOM, Apr. 4, 2012, [http://](http://phx.corporate-ir.net/phoenix.zhtml?c=176060&p=irol-newsArticle&ID=1680062)

phx.corporate-ir.net/phoenix.zhtml?c=176060&p=irol-newsArticle&ID=1680062.

¹⁷⁵ Ken Auletta, *Publish or Perish*, THE NEW YORKER, Apr. 26, 2010, http://www.newyorker.com/reporting/2010/04/26/100426fa_fact_auletta.

¹⁷⁶ Michael S. Rosenwald, *Independent Bookstores Turn A New Page on Brick-and-mortar Retailing*, THE WASHINGTON POST, December 15, 2013, http://www.washingtonpost.com/local/independent-bookstores-turn-a-new-page-on-brick-and-mortar-retailing/2013/12/15/2ed615d8-636a-11e3-aa81-e1dab1360323_story.html.

offering free shipping on discounted books, as a way to support local booksellers.¹⁷⁷ In the same sense, a number of countries have adopted fixed book resale prices in order to support more intimate, carefully curated, and diverse book businesses that can offer reading options that blockbuster bookstores cannot.

When it comes to digital books, these stores face an obstacle that is not related to economies of scale: the foreclosure of the e-book market by the lack of interoperability in DRM schemes. In fact, in 2013, independent bookstores initiated a class action against Amazon and the then-“Big Six” publishers,¹⁷⁸ alleging that their inability to sell e-books readable on the retailers’ reader devices harmed competition. The case, however, was riddled with inconsistencies such as claims that Amazon conspired with the publishers to foreclose the e-book market and misconceptions about technical issues regarding DRM, as well as failing to prove damages under antitrust law.

5.2 Considerations Regarding Impacts on Access to Books

As we have seen so far, the lack of interoperability in DRM schemes can cause significant competition restrictions in the e-book market that, in turn, can impact access to books. Each of these access restrictions can be considered insignificant if taken individually, but when combined, they call attention to the foreclosure of the e-book market. Even so, it is very likely that a competition-only analysis would still consider such circumstances harmless or compensated by eventual positive gains, such as efficiency, higher-quality products, and lower prices. This result occurs because antitrust law is worried about specific values and goals, which do not include other public policy matters such as valuing book culture and expanding literacy. However, these are goals that a policy maker should be attentive to when institutional design is involved. Although it is true that market concentration can bring positive effects in a number of industries, we should be more careful with the book industry. In this case, the prospect of having one or a few companies dominating production and distribution could give them more control over the exchange of ideas than any other private entity has ever had.¹⁷⁹

At this point, it should also be noted that the purpose of copyright is not to simply guarantee an economic return on investment necessary to the creation of intellectual assets.

¹⁷⁷ Pamela Druckerman, *The French Do Buy Books. Real Books.*, THE NEW YORK TIMES, July 9, 2014, <http://www.nytimes.com/2014/07/10/opinion/pamela-druckerman-the-french-do-buy-books-real-books.html>.

¹⁷⁸ *Bookhouse of Stuyvesant Plaza, Inc. v. Amazon.com, Inc.*, Case No. 1:2013cv01111 (N.Y.S.D. 2013).

¹⁷⁹ George Packer, *Cheap Words*, THE NEW YORKER, Feb. 17, 2014, <http://www.newyorker.com/magazine/2014/02/17/cheap-words>.

The purpose of copyright protection is to promote progress, and to achieve this goal it is necessary to balance private and public interests, which calls for an analysis if its instruments respect the equilibrium between protection and access. Netanel's conception of copyright as the foundation of the democratic civil society can be helpful in this analysis. According to Netanel, copyright has two functions: (1) a production function, as an "incentive for creative expression on a wide array of political, social and aesthetic issues," and as a (2) structural function, by supporting "a sector of creative and communicative activity that is relatively free from reliance on state subsidy, elite patronage, and cultural hierarchy."¹⁸⁰ These functions can potentially strengthen the underpinnings of our democratic culture and promote civic association. However, as we have seen, the impacts of DRM on the e-book market currently compromise these functions by concentrating creative power in the hands of few big corporations who ultimately decide which e-books people are permitted to buy. In this sense, it is possible to say that DRM schemes, designed to guarantee through copyright protection that creative works continue to be produced, is actually restricting the access to such works.

For these reasons, public policy should reevaluate the choice to grant DRM schemes such wide latitude in allowing substantial restrictions of authorized circumvention cases and granting copyright holders the power to determine the scope of protection without any limits. A reevaluation of DRM appears is critical in order to ensure that digital reading can flourish and spread its numerous benefits.

6 CONCLUSION

In this paper, we have discussed how access to e-books, a powerful technology that holds a considerable potential to spread knowledge, has been undermined by government's choice to emphasize private rights in information. In particular, extensive copyright protection through DRM schemes, which permit copyright holders to design themselves the limits of what can be done to artistic works, has resulted in a lack of interoperability in the e-book market. Consequently, a tendency towards market concentrated prevails, as impacts on network effects, barriers to entry, and switching costs arise. In short, "anti-circumvention regulations are increasingly used in circumstances for which they were clearly not intended. Increasingly, DRM technologies and anti-circumvention regulations

¹⁸⁰ Neil Weinstock Netanel, *Copyright and a Democratic Civil Society*, 106 THE YALE LAW JOURNAL 283, 288 (1996).

are not only used to control content against unauthorized copying, but also to control markets against undesired competition.’’¹⁸¹

This situation can put booksellers in a privileged position to control information flow in the market, and, in some ways, it is already doing so. In particular, restrictions imposed on the sale of books based on publisher or content are extremely worrying when the reader is locked into an ecosystem. However, we cannot rely on antitrust policy to deal with all of the problems that arise from competition restrictions, since this instrument has its own goals and values. Instead, it is the role of legal scholars and policy makers to question if the tools designed to promote progress are being effective in doing so. If DRM protection as currently applied to the e-book market is moving the control of information and knowledge into the hands of big corporations, it is the law that must react and take action, for example, by limiting the protection in DRM schemes, encouraging the use of less intrusive copyright protection, or promoting interoperability in relevant industries.¹⁸²

In sum, books play a key role in promoting intellectual curiosity and democracy in general, and digital reading can help bring out its full potential. To achieve this potential, however, institutional design must be reexamined to favor an autonomous diffusion of information and culture.

¹⁸¹ Bechtold, *supra* note 3, at 619.

¹⁸² Bechtold, *supra* note 47.