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Digital Trade and Intellectual Property

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Abstract:

The objects of digital trade are often subject to intellectual property (IP) protection. The exclusionary nature of IP rights which is deemed to incentivise and reward the creation of new goods, however, is a mechanism developed in the a pre-digital era and can therefore not be seamlessly transposed to digital goods and services. This chapter outlines the Janus-headed nature of IP rights for digital trade, as, on the one hand enabling it while also having the ability to hamper it. It first looks at the interfaces of IP with digitization and trade in order to set the scene and then outlines its effects on digital trade and how regulators have sought to address the issues. The chapter also looks at some current issues of the interface of digital trade and IP, such as digital exhaustion, intermediary liability and the impact of new technologies, e.g. Blockchain technology and NFTs as well as 3D printing.

Keywords: intellectual property, digital trade, digitization, Internet, E-commerce, new technologies

1. Introduction

The Covid-19 pandemic has had profound effects on how we interact as human beings. Due to contact and travel restrictions, the way in which we work together and collaborate with one another has undergone fundamental changes. Work was conducted from home, where possible, by connecting co-workers through digital platforms. Schools and universities also had to rethink their pedagogy and have embraced digital technologies in their curricula. While countries more and more appear to revert back to pre-Covid habits, the Covid-19 pandemic highlighted the power that the connectivity of the internet can have and showcased the abilities of digital trade, distribution and digital business models. Digitisation has, for instance, changed the way goods are conceived, produced, transferred, and consumed² and has been embraced by many successful companies. Music and movies are consumed not anymore by purchasing CDs or DVDs but are increasingly being delivered to end-consumers by the internet. The same applies to video games.³

The physical or virtual goods or items traded digitally are often subject to IP protection. Modern intellectual property law was, however, conceived in the 19th century in an analogue world. Digitisation, in conjunction with the ever-increasing and ever-faster connectivity provided by the internet, meant that traditional business models built on analogue IP as well as the rights themselves, needed to adapt. The internet is the “biggest copying machine”, and the copied content can be shared in an instance around the globe with a push of a button. This, of course, challenged IP enforcement as infringers could be based in various jurisdictions, often hiding under the veil of anonymity which

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² Javier López González and Janos Ferencz, “Digital Trade and Market Openness”, (OECD Trade Policy Papers No.217, OECD Publishing, 2018) 9 <<http://dx.doi.org/10.1787/1bd89c9a-en>> accessed 19 July 2022.

³ These have been some of the most popular activities of internet users in the EU in 2019 - Nadia Jacob and Felice Simonelli, ‘How to Fully Reap the Benefits of the Internal Market for E-Commerce — New economic opportunities and challenges for digital services 20 years after the adoption of the e-Commerce Directive’, (Study for the IMCO Committee, 2020), p.23.

<[http://www.europarl.europa.eu/RegData/etudes/STUD/2020/648801/IPOL_STU\(2020\)648801_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/STUD/2020/648801/IPOL_STU(2020)648801_EN.pdf)> accessed 19 July 2022.

the internet might provide. Some IP business models accordingly struggled and perished, while others were able to adapt as fully being able to embrace the potential given by the internet. The response by legislators and courts to the ever-increasing digitization and dissemination was often to widen IP protection and to provide new means to enforce it. This, however, might negatively impact on the flow of digital trade.

This chapter will analyse this regulatory dilemma by outlining the current state of affairs of the IP framework for digital trade with a view on the situation in the European Union (EU) and the United States. First, it will trace the development from “unshackling” IP content from its tangible carriers to its current digital manifestations and the problems this entailed. Secondly, as digital trade is global, the ability of IP rights as tradeable commodities and the international legal frameworks enabling this will be discussed. The chapter will then outline IP’s ambiguous operation within digital trade as on the one side, enabling trade in digital IP content, while also setting stumbling blocks. The chapter will finally discuss some current and emerging issues surrounding IP and digital trade, such as digital exhaustion and intermediary liability and also looks at the potential impact of new technologies, such as Blockchain technology and Non-Fungible Tokens (NFTs), as well as 3D printing technology.

2. Setting the scene: Intellectual Property in the context of trade and digitization

The World Intellectual Property Organization (WIPO), a United Nations (UN) specialized agency, defines intellectual property as “creations of the mind, such as inventions; literary and artistic works; designs; and symbols, names and images used in commerce.”⁴ These creations of the mind are protected by different types of IP rights. Copyright, also referred to as author’s rights in many civil law jurisdictions, protects literary and artistic works but can also extend to subject matter, such as computer programmes and data bases. Patents are granted for new and non-obvious inventions, while trade marks protect signs used in commerce and designs⁵ protect the appearance of a particular product. Other areas of IP include the protection of geographical indications and plant varieties. While not providing protection through providing exclusive rights, IP protection is complemented by trade secret protection and the various forms of unfair competition law. The different variations of IP rights all share the common theme that the protected object is something intangible.

IP rights are formed as exclusive rights. They provide their owners with exclusivity in relation to a particular item with the use of legal mechanisms to stop third parties from using the particular subject matter covered by IP rights without their authorization. IP’s nature as exclusive rights is usually explained by their purpose in stimulating creativity and inventive behaviour⁶ but also, to reward inventors and authors for the contributions resulting from such activities.⁷ Economic theory suggests that the exclusivity provided to the right holder serves to eliminate the so-called free riding problem.

⁴ World Intellectual Property Organization, “What is Intellectual Property?” <<https://www.wipo.int/about-ip/en/>> accessed 19 July 2022.

⁵ Design patents under US Law.

⁶ “Patents are especially susceptible to the economic argument that industrial innovation requires incentivisation”- Graham Dutfield and Uma Suthersanen, *Global Intellectual Property Law*, (2nd edn, Edward Elgar 2020) 36.

⁷ Mikhalien du Bois, “Justificatory Theories for Intellectual Property Viewed through the Constitutional Prism” [2018] P.E.R./P.E.L.J. 19.

This situation occurs in relation to public goods, such as information, which are deemed to be non-excludable and non-rivalrous. Non-excludable means that a good cannot be exhausted by someone's use but is able to be used simultaneously by others.⁸ Being non-rivalrous good entails that it is very difficult, if not impossible, to exclude a third party from using that particular good. IP rights, thus, provide right holders with a means to counteract unauthorized uses of their creations or inventions by free riders. It disincentivises others to infringe the protected items due to the legal sanctions available such, as damages and injunctive relief. IP protection, therefore, is aimed at overcoming a market failure due to creators not feeling compelled to create in the absence of any form of protection or legal intervention⁹ by addressing the free riding problem. It should be noted here that this economic explanation relates to some IP rights more than others. Copyright, for instance, is usually also explained by deontological rationales in protecting the works as an extension of the individual,¹⁰ while the existence of trade mark protection is usually also explained by law and economics but for different reasons.¹¹

2.1. Intellectual Property and Digitization

Many digital items exchanged in digital trade consist of information contained in computer-readable bits and bytes. Of these digital items, many can be the subject matter of IP.¹² The concept and doctrinal underpinnings of contemporary IP protection, however, predate the digital age. It evolved in relation the protected subject matter of IP being manifested in some form of physical carrier, such as a book, or machine. Technological change, however, meant that these physical carriers could be reproduced faster and disseminated more widely which posed challenges to right holders. Photocopiers and video cassette recorders, for instance, made the reproductions of books, articles and films easier. Technology enabled new ways of distribution of content which has led to emergence of new media, such as film and radio. These developments have often been disruptive in relation to business models that were built on IP protection and have often led to the creation of new rights or the amendment of existing ones.¹³ The emergence of digitization and the inception of the internet, however, had the most profound impact. While digitization decoupled the protected content from its tangible carriers by creating perfect copies, the global reach of the internet meant that it could be

⁸ Robert B. Cooter and Thomas Ulen, *Law and Economics* (5th edn, Pearson 2004) 120.

⁹ Sacha Wunsch-Vincent, "The economics of copyright and the Internet" in Johannes M. Bauer and Michael Latzer (eds), *Handbook on the Economics of the Internet* (Edward Elgar 2016) 229-246, 230.

¹⁰ Graham Dutfield and Uma Suthersanen, *Global Intellectual Property Law*, (2nd edn, Edward Elgar 2020) 44-49.

¹¹ "The primary reasons for the existence and protection of trademarks are that (1) they facilitate and enhance consumer decisions and (2) they create incentives for firms to produce products of desirable qualities even when these are not observable before purchase." - Nicholas S. Economides, "The Economics of Trademarks" [1988] *Trademark Reporter* 523 – 539, 526.

¹² Arturo Ancona, "Intellectual Property and E-Commerce", (WIPO-WASME Special Program on Practical IP Issues, Geneva, October 6 to 9, 2003) 2

https://www.wipo.int/edocs/mdocs/sme/en/wipo_wasme_ipr_ge_03/wipo_wasme_ipr_ge_03_13-main1.pdf> accessed 19 July 2022.

¹³ New business models emerged based on how content could be disseminated and consumed while others have perished. This phenomenon has been described by the Austrian economist Joseph Schumpeter as "creative destruction" - Joseph A. Schumpeter, *Capitalism, Socialism and Democracy*, (Routledge, 1994), pp. 681.

disseminated worldwide, without limits and difficult to trace.¹⁴ This has been an been the cardinal issue for IP enforcement.

The so-called WIPO Internet treaties¹⁵ can be seen as a regulatory response in addressing digitization as an emerging issue for copyright law and its exploitation in the digital age. These treaties have been implemented, for instance, in the United States with the Digital Millennium Copyright Act (DMCA)¹⁶ and the Information Society Directive (InfoSoc Directive) within the European Union.¹⁷ They clarified that the digitization of copyright-protected works would constitute an infringement of the reproduction right where it would take place without authorisation of the right holder.¹⁸ They also entailed an expansion of the scope of existing rights while also adding new ones. The introduction of the making available right¹⁹ which allowed right holders to extend their exclusive rights to uses over the internet, showcases this. It allowed to exploit copyright in different ways which has had profound effect on business models by untying the protected content, such as films, computer programmes or video games, from its tangible carriers (i.e. video cassettes, floppy discs and CDs and CD ROMs or DVDs). The retail models which were built on the sale or renting of physical carriers of IP content became obsolete with increasing digital distribution. This has meant that physical locations, such as warehouses or video rental shops,²⁰ as well as the logistics in relation to transporting physical carriers are becoming less and less important.²¹ Another measure provided by the WIPO Internet Treaties surrounded the protection of Digital Rights Management (DRM) and Technological Protection Measures (TPMs) and sought to protect against the circumvention of these "digital locks".²²

While the WIPO Treaties have provided templates for signatory states for substantive provisions of how copyright could deal with digitization and the internet, it was rather vague in relation to one important aspect of intellectual property protection: enforcement.²³ Equally, the most comprehensive multilateral Agreement worldwide on intellectual property, the Agreement of Trade-related Aspects of Intellectual property Rights (TRIPS), an annex to the WTO Agreement which will be further explained below, does not provide precise measures on enforcement. There have, of course,

¹⁴ Arturo Ancona, "Intellectual Property and E-Commerce", (WIPO-WASME Special Program on Practical IP Issues, Geneva, October 6 to 9, 2003) 7
<https://www.wipo.int/edocs/mdocs/sme/en/wipo_wasme_ipr_ge_03/wipo_wasme_ipr_ge_03_13-main1.pdf>
accessed 19 July 2022.

¹⁵ The WIPO Internet Treaties consist of the WIPO Copyright Treaty (WCT) which covers the protection for authors of literary and artistic works and the WIPO Performances and Phonogram Treaty (WPPT) which deals with the protection for authors rights of performers and phonogram producers.

¹⁶ Digital Millennium Copyright Act, Title I.

¹⁷ Recital 15, Directive 2001/29 on the harmonisation of certain aspects of copyright and related rights in the information society [2001] OJ 2001 L 167/10.

¹⁸ Agreed statements concerning Article 1(4) WCT; Agreed statements concerning Articles 7, 11 and 16 WPPT.

¹⁹ Article 8 WCT (Right of Communication to the Public); Article 10 WPPT (Right of Making Available of Fixed Performances), Article 14 WPPT (Right of Making Available of Phonograms).

²⁰ The video of the rise and fall of Blockbuster Video rental shops in the United States over the years with a peak in 2005 with now only one remaining in Bend Oregon, United States - Eric Diaz, 'This Visualization shows the Rise and Fall of Blockbuster Video' (The Nerdist, 30 June 2020) <<https://nerdist.com/article/blockbuster-video-rise-and-fall-visualization/>> accessed 19 July 2022.

²¹ Andrew Murray, *Information Technology Law: The Law & Society*, (4th edn, Oxford University Press 2019) 274–275.

²² Article 11 WCT, Article 18 WPPT.

²³ See Article 14 WCT; Article 23 WPPT.

been various national or regional approaches in addressing online copyright infringement. Some have attempted to deter individuals from copyright infringement, while others focussed on intermediaries, such as internet service providers or “platforms” to have a role in minimising copyright infringement occurring over their networks. An effort to provide for a comprehensive international legal framework addressing online copyright infringement can be seen in the Anti-Counterfeiting Trade Agreement (ACTA), a plurilateral treaty²⁴ which sought to improve “global standards for the enforcement of IPRs [in order] to more effectively combat trade in counterfeit and pirated goods.”²⁵ While the final treaty text was adopted in December 2010, it faced criticisms due to the secrecy surrounding its negotiations and its far reaching substantial rules²⁶ and has led to public protests in several countries.²⁷ The nail to its coffin was its rejection by the European Parliament by 478 votes to 39.²⁸ The failure of ACTA thus sets a cautionary tale for legislators in not overstretching IP protection.

2.2. Intellectual Property and Trade

IP rights are territorial. They are created and protected in the relevant jurisdiction and do not extend beyond the territory of protection.²⁹ This is, on the one hand, easily explained due to state sovereignty extending to the boundaries of that particular jurisdiction. Territoriality of IP protection, on the other hand, also highlights that IP rights, their inception, historical development and scope can be explained by the policy goals to be achieved within that jurisdiction.³⁰ Thus, the territoriality principle can to a certain degree explain the historically divergent approaches and different levels and forms of protection provided by IP. Their rationale to incentive or reward creative enterprise which was explained above suggests that legislators sought to devise laws suiting the level of industrialisation and development of their national industry.³¹ This also means that from a policy perspective, sovereign nations are able to devise IP legislation as it suits their current economic development.

From a trade perspective, diverging rules with regards to IP are not conducive to trade. This is easily explained: Whether a particular object traded beyond borders is protected in one jurisdiction but not within the other, fundamentally impacts on the outcome of a commercial deal and can lead to uncertainties between the parties. Trade law regards such diverging laws as non-tariff barrier to trade

²⁴ The treaty was negotiated between the USA, Japan, the EU as well as its Member States in their own national capacity, Canada, Australia, Mexico, Morocco, New Zealand, the Republic of Korea, Singapore and Switzerland.

²⁵ Rita Matulionyte, ‘ACTA’s Digital Chapter: remaining concerns and what can be done’ [2011] Queen Mary Journal of Intellectual Property 248-271.

²⁶ Michael Geist, ‘ACTA’s State of Play: Looking Beyond Transparency’ [2011] American University International Law Review 543-558.

²⁷ Dave Lee, ‘Acta protests: Thousands take to streets across Europe’ (BBC, 8 March 2012) <<https://www.bbc.co.uk/news/technology-16999497>> accessed 19 July 2022.

²⁸ Benjamin Farrand, ‘Lobbying and Lawmaking in the European Union: The Development of Copyright Law and the Rejection of the Anti-Counterfeiting Trade Agreement’ [2015] Oxford Journal of Legal Studies 487-514, 511.

²⁹ “IP rights tend to be territorial they only give protection in the countries where they are granted or registered.” – UK Intellectual Property Office, “IP Basics” <<https://www.gov.uk/government/publications/ip-basics/ip-basics>> accessed 19 July 2022.

³⁰ Lydia Lundstedt, *Territoriality in Intellectual Property Law* (Stockholm University, 2016) 79.

³¹ The innovation clause within the US Constitution which provides Congress the power “to promote the Progress of Science and Useful arts, by securing, for limited Times, to Authors and Inventors, the exclusive Right to their respective Writings and Discoveries” is a good example for the programmatic role that IP protection takes.

in goods or services.³² A push towards eliminating barrier to trade has been on the international agenda since the end of World War 2, when many nations put aside their stance of economic protectionism commonly seen during the interwar period. A pinnacle moment was the establishment of the General Agreement on Trade and Tariffs (GATT) in 1947 in the aftermath of the Bretton Woods conference and the failure to establish the International Trade Organisation (ITO). In various multilateral rounds, GATT sought to eliminate barriers to trade by creating an international framework which would be conducive for international trade. Initially, these rounds revolved around tariffs but since the Uruguay Round of GATT the focus shifted on intellectual property as a key element to free trade and was promoted and pushed by developed countries.³³ The Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS), an annex to the WTO Agreement, was devised and marked an important shift in international IP law.³⁴

While other international intellectual property agreements exist which predate the TRIPS Agreement, such as the Paris³⁵ and Berne Convention,³⁶ it has arguably been the most comprehensive and far reaching one. It covers all fields of intellectual property law, such as substantive, as well as procedural rules. The Agreement wishes to alleviate the aspects of IP which may be hampering international trade. In its first provision, for instance, it sets minimum standards which IP rights in the laws of WTO Member States must have.³⁷ This had the effect that countries, particularly developing ones, among WTO Member States lost some legislative flexibility in tailoring their national IP frameworks. The inception of TRIPS also meant that new subject matter, such as computer programs, databases or geographical indications, was introduced in some WTO Member States. The Agreement's arguably most important feature is that it tethers compliance with its rules to the WTO's dispute settlement understanding.

An example on eliminating trade barriers posed by IP rights can be seen in the thrust by which the European Union (EU) has sought and still seeks to harmonize IP laws within its territories. By means of Regulations and Directives³⁸ and more recently through Article of the Treaty on the Functioning of the European Union (TFEU), the EU legislator has sought to eliminate trade barriers between its Member States serving the completion of one of the EU's main goal: the creation of the Internal Market. The EU legislator has been very active in the area of copyright law and is providing

³² Graham Dutfield and Uma Suthersanen, *Global Intellectual Property Law*, (2nd edn, Edward Elgar 2020) 12.

³³ Surendra J. Patel, 'Intellectual Property Rights in the Uruguay Round: A Disaster for the South?' [1989] *Economic and Political Weekly* 978–993, 978.

³⁴ The inclusion of Intellectual property within a trade context was controversially regarded as enabling the conclusion of such treaty between developed and developing countries. Peter Drahos, stated that the history of TRIPS is “remarkable because one country, the US, was able to persuade more than 100 other countries that, they, as net importers of technological and cultural information, should pay more for the importation of that information” – Peter Drahos, 'Global Property Rights in Information: The story of TRIPS at the GATT' [1995] *Prometheus* 6-19, 7.

³⁵ Paris Convention for the Protection of Industrial Property.

³⁶ Berne Convention for the Protection of Literary and Artistic Works.

³⁷ Article 1 (1) TRIPS.

³⁸ Article 288 Consolidated Version of the Treaty on European Union [2008] OJ C115/13.

an increasingly harmonised EU copyright framework. In Trade Mark³⁹ and Design law⁴⁰, the EU has even established unitary EU IP rights which are granted by a specialised EU agency, the European Union Intellectual Property Office (EUIPO). These rights cover the territory of the European Union and can only be acquired and assigned uniformly.⁴¹ While no unitary EU copyright exists, the EU legislator has been very active in harmonising copyright law within the Union by the means of Directives which require Member States to adopt the goals mandated therein. Currently, the Digital Single Market Directive⁴² is the latest important measure of the EU in the field of copyright law. Another trend that is leading to more harmonised global frameworks of IP can be seen in IP chapters within bi- and multilateral investment treaties. These often go beyond to those mandated within the TRIPS Agreement.⁴³

3. Intellectual Property and Digital Trade

3.1. IP as enabler of trade in digital assets

Intellectual property protection constitutes a regulatory intervention to overcome the free riding problem, as we have established. For the purposes of digital trade, IP rights serve another important purpose. They also enclose the protected information or content by the means of exclusive rights. Thus, they allocate a particular subject matter to a particular individual or entity by the means of property law.⁴⁴ This commodification of the protected subject matter enables the commercialisation of intangible goods.⁴⁵ This can be achieved by assigning/selling or licensing the content and can therefore be used to generate income through royalties⁴⁶ or other means.⁴⁷ The way in which the law enabled digital trade in IP content can be seen in the above-mentioned WIPO Internet treaties. The addition of the right of communication to the public grants right holders the possibility to authorize

³⁹ Regulation (EU) 2017/1001 of the European Parliament and of the Council of 14 June 2017 on the European Union trade mark (Text with EEA relevance) OJ L 154 (EU Trade Mark Regulation – EU TMR)

⁴⁰ Council Regulation (EC) 6/2002 of 12 December 2001 on Community designs OJ EC No L 3 (Community Design Regulation – CDR).

⁴¹ Article 1(2) EU TMR; Article 1(3) CDR.

⁴² Directive (EU) 2019/790 of the European Parliament and of the Council of 17 April 2019 on copyright and related rights in the Digital Single Market and amending Directives 96/9/EC and 2001/29/EC (Text with EEA relevance.) OJ L 130 (Digital Single Market Directive).

⁴³ Henning Grosse Ruse - Khan, 'Protecting Intellectual Property under BITs, FTAs, and TRIPS: Conflicting Regimes or mutual Coherence?' in C. Brown and K. Miles (eds), *Evolution in Investment Treaty Law and Arbitration* (Cambridge University Press 2011) 485 – 515, 490.

⁴⁴ David Lametti, 'The Concept of Property: Relations Through Objects of Social Wealth' [2003] *University of Toronto Law Journal* 325, 334

⁴⁵ Kenneth J. Arrow, 'Economic Welfare and the Allocation of Resources of Invention' in National Bureau of Economic Research, *The Rate and Direction of Inventive Activity* (Princeton University Press 1962) 615; Sacha Wunsch-Vincent, 'The economics of copyright and the Internet' in Johannes M. Bauer and Michael Latzer (eds), *Handbook on the Economics of the Internet* (Edward Elgar 2016) 229-246, 231.

⁴⁶ Keith Maskus, 'Fostering Innovation in Digital Trade' in Xavier Seuba, Christophe Geiger and Julien Pénin (eds), *Intellectual Property and Digital Trade in the Age of Artificial Intelligence and Big Data — Global Perspectives for the Intellectual Property System* (2018, 5 CEIPI-ICTSD) 19, 25.

⁴⁷ Rosemary J. Coombe, Steven Schnoor and Mohsen Ahmed, 'Bearing Cultural Distinction: Informational Capitalism and New Expectations for Intellectual Property' [2007] *UC Davis Law Review* 891, 893.

any communication to the public, by wire or wireless means, including "the making available to the public of works in a way that the members of the public may access the work from a place and at a time individually chosen by them".⁴⁸ The clarification that the making available of works would fall within this right sought to cover on-demand, interactive communication of works over the internet, such as services provided by YouTube and others.

In addition, IP also serves in securing venture capital⁴⁹ which firms may need to develop their particular business models. Aside from this, trade in digital IP goods also entails the positive effect in lowering transaction costs.⁵⁰ As already mentioned, digital distribution makes physical storage space largely redundant due to virtual inventories and does not require the same means of logistics since physical trade routes are shifted to digital ones using the internet. The unbundling from physical carriers also means that consumer preferences can be better served. There is no need to buy the whole music album of an artist or purchase an entire newspaper. Nowadays one can choose which songs one wishes to listen to or which article to read.⁵¹ This has led to fundamental changes on how music and audio-visual content is currently being consumed but has also impacted, for instance, the video game industry.

3.2 IP as stumbling block for digital trade

While IP has enabled the commodification and distribution of digital goods, it has not only had positive effects on digital trade. One of the deficiencies relates to the territoriality of IP⁵² in conjunction with the exclusivity it provides to its right holders. This combination allows for the segregation of markets⁵³ according to territorial lines and jurisdictions through selective licensing by right holders which choose to license the content for some territories while refusing to do so for others.⁵⁴ In addition, the threat that digitization and the internet would pose to commercialisation of

⁴⁸ Art. 8 WCT

⁴⁹ Mary Juetten, 'Do Venture Capitalists Care About Intellectual Property?' (Forbes, 11th August 2015) <<https://www.forbes.com/sites/maryjuetten/2015/08/11/do-venture-capitalists-care-about-intellectual-property/?sh=1204e8d35b87>> accessed 19 July 2022.

⁵⁰ Sacha Wunsch-Vincent, "The economics of copyright and the Internet" in Johannes M. Bauer and Michael Latzer (eds), *Handbook on the Economics of the Internet* (Edward Elgar 2016) 229-246, 233; Graham Dutfield and Uma Suthersanen, *Global Intellectual Property Law*, (2nd edn, Edward Elgar 2020) 483.

⁵¹ Sacha Wunsch-Vincent, "The economics of copyright and the Internet" in Johannes M. Bauer and Michael Latzer (eds), *Handbook on the Economics of the Internet* (Edward Elgar 2016) 229-246, 236.

⁵² Hugenholtz refers to this as the "Achilles heel" of copyright harmonisation within the EU- Bernt Hugenholtz, 'Is Harmonization a Good Thing?' in Justine Pila and Ansgar Ohly (eds), *The Europeanization of Intellectual Property Law* (Oxford University Press, 2013) 57-73, 68.

⁵³ Sacha Wunsch-Vincent, "The economics of copyright and the Internet" in Johannes M. Bauer and Michael Latzer (eds), *Handbook on the Economics of the Internet* (Edward Elgar 2016) 229-246, 232. This issue is addressed with unified rights, as established in the EU. Another mechanism to overcome this has been conducted with the Portability Regulation (Regulation (EU) 2017/1128 of the European Parliament and of the Council of 14 June 2017 on cross-border portability of online content services in the internal market [2017] OJ L168/1.), which allows subscribers to access online content outside the Member State of their residence while temporarily present in another Member State.

⁵⁴ Nadia Iacob and Felice Simonelli, 'How to Fully Reap the Benefits of the Internal Market for E-Commerce — New economic opportunities and challenges for digital services 20 years after the adoption of the e-Commerce Directive', (Study for the IMCO Committee 2020) 24

IP was often answered by an expansion of IP rights and their scope. This growing control of content by right holders, however, may impair the overall, seamless flow of data and information over the internet, the backbone of digital trade.⁵⁵ This issue will be discussed in more detail later in this chapter.

Transposing traditional IP right doctrines from an analogue world to the digital can generally lead to unwanted consequences for digital trade. An example which relates to the extension to copyright infringement occurring in the case of digital reproductions illustrates this well. While extending the reproduction right to include copies “in any material form”⁵⁶ which would ensure that unauthorized use of digital copies could be restrained by the right holders, it could also entail overreaching consequences for displaying goods on internet browsers which create reproductions from the cache of the computer.⁵⁷ The potential chilling effects due to the uncertainty of being sued by right holders might as well could lead to the breakdown of internet communication.⁵⁸ While this issue was not addressed by the WIPO Internet Treaties, the InfoSoc Directive provided for an exception for temporary acts of reproduction⁵⁹ but this example illustrates the regulatory challenges in devising an IP framework conducive to digital trade.

4. Selected Issues

4.1 Digital second hand markets and exhaustion of copyright

An important issue for digital trade in goods covered by copyright law is whether and when the exclusive rights are exhausted in the digital environment. Similar to the situation offline where a book can be resold without the copyright owner interfering with this transaction, a resell market for second-hand digital goods could be a desirable goal. Copyright law provides its right holders with a set of rights, one being the right of first distribution.⁶⁰ This gives them the exclusive right to commercialise the work on the market in return for a remuneration. This right, however, is usually exhausted (or would fall within the First-Sale Doctrine under US copyright law) and can therefore not be enforced, once the work has been placed onto the market with the consent of the right holder.⁶¹ Similar considerations could apply to digital works, such as computer programmes, e-books or music files which could be traded on online second-hand markets. Transposing rules for IP content in tangible goods to digital ones, however, is not unproblematic as already discussed. The exhaustion doctrine was developed in relation to copyright law⁶² in the analogue world and transposing it to digital goods

<[http://www.europarl.europa.eu/RegData/etudes/STUD/2020/648801/IPOL_STU\(2020\)648801_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/STUD/2020/648801/IPOL_STU(2020)648801_EN.pdf)> accessed 19 July 2022.

⁵⁵ Janos Ferencz and Frédéric Gonzales, ‘Barriers to trade in digitally enabled services in the G20’ (OECD Trade Policy Papers No.232, 2019) 5 <https://read.oecd-ilibrary.org/trade/barriers-to-trade-in-digitally-enabled-services-in-the-g20_264c4c02-en#page6> accessed 19 July 2022.

⁵⁶ Article 2 InfoSoc Directive.

⁵⁷ “The restricted act of copying is therefore usually implicated in uses of works recorded in digital form.” - see Nicholas Caddick et al. (eds), *Copinger & Skone James on Copyright*, (17th edn, Sweet & Maxwell 2016) [7.31].

⁵⁸ Manfred Rehbinder and Alexander Peukert, *Urheberrecht*, (17th edn, C.H. Beck 2015) [640].

⁵⁹ Article 5 (1) InfoSoc Directive.

⁶⁰ E.g. Article 4(1) InfoSoc Directive, Sec. CDPA 1988, 17 U.S. Code § 106 (3).

⁶¹ E.g. Article 4(2) InfoSoc Directive, Section 18 (2) CDPA 1988, 17 U.S. Code § 109.

⁶² Péter Mezei, *Copyright Exhaustion: Law and Policy in the United States and the European Union* (2nd. edn, Cambridge University Press 2022) 106.

entails two issues: First, digital copies are not subject to the wear and tear of tangible carriers but stay identical to the original and secondly, that they can easily be disseminated and shared worldwide.⁶³ This would entail a risk of piracy and might impact the market for sales of the originals.⁶⁴

In the EU context, the exhaustion of rights doctrine is seen as overcoming barrier to trade within the single market⁶⁵ and applied in relation to the distribution right regarding tangible carriers. For digital trade, the communication to the public right introduced by the WIPO Internet treaties, however, needs to be considered as it encompasses all forms of transmission in intangible formats, thus being the base for new services on the internet.⁶⁶ This particular right, however, cannot be exhausted in the EU for works falling within the InfoSoc Directive,⁶⁷ and has the effect of banning the resale of lawfully acquired digital products,⁶⁸ and a secondary market. The situation is exacerbated where digital works are treated differently within the context of digital trade. The seminal *UsedSoft* decision by the CJEU,⁶⁹ held with regards to the resale of computer software⁷⁰ that “[t]he on-line transmission method is the functional equivalent of the supply of a material medium.”⁷¹ This statement promotes the equal treatment of digital and physical goods in this context. The Court elaborated that, where a permanent copy is received by the end-user in exchange for a fixed purchase price which is retained on a permanent basis, then this act would be covered by the right of distribution under the Software Directive,⁷² ultimately meaning that it could be subject to being exhausted⁷³ and not the right of communication to the public which is not.⁷⁴ Stringent criteria were, however, mandated by the Court for the distribution right to be exhausted to address the issue surrounding the digital copy.⁷⁵

⁶³ Ariel Katz, ‘Digital exhaustion: North American observations’ in John A. Rothchild (ed), *Research Handbook on Electronic Commerce Law* (Edward Elgar 2016) 164.

⁶⁴ Caterina Sganga, ‘A Plea for Digital Exhaustion in EU Copyright Law’ [2018] JIPITEC 212, 213.

⁶⁵ C-15/74 *Centrafarm BV et Adriaan de Peijper v Sterling Drug Inc.* [11], [15].

⁶⁶ Article 3(1) InfoSoc Directive.

⁶⁷ Article 3(3) InfoSoc Directive.

⁶⁸ Stavroula Karapapa, ‘Exhaustion of rights on digital content under EU copyright: positive and normative Perspectives’ in Tanya Aplin (ed), *Research Handbook on Intellectual Property and Digital Technologies* (Edward Elgar, 2020) 483- 505, 493.

⁶⁹ *UsedSoft GmbH v Oracle International Corp* (C-128/11) EU:C:2012:407.

⁷⁰ The CJEU noted that the particular object in question would qualify as falling within the ambit of the Computer Software Directive which does not differentiate between tangible and intangible copies of computer programs in relation to exhaustion. Additionally, these rules were *lex specialis* to Art.3 of the InfoSoc Directive. - *UsedSoft GmbH v Oracle International Corp* (C-128/11) EU:C:2012:407 [73], [74].

⁷¹ *UsedSoft GmbH v Oracle International Corp* (C-128/11) EU:C:2012:407 at [61].

⁷² Article 4(1)(2) Directive 2009/24 on the legal protection of computer programs [2009] OJ L111/16. (Software Directive)

⁷³ Article 4(2) Software Directive.

⁷⁴ This then would suggest that “uses that do not lead to the permanent reproduction or sale of any copy of a protected subject matter are governed by the communication or making available to the public right” - Péter Mezei, ‘The Doctrine of Exhaustion in Limbo — Critical Remarks on the CJEU’s Tom Kabinet Ruling’ [2020] 2 *Zeszyty Naukowe Uniwersytetu Jagiellonskiego — Prace z Prawa Własności Intelektualnej* (Jagiellonian University Intellectual Property Law Review) 139 <<https://ssrn.com/abstract=3560138>> accessed 19 July 2022.

⁷⁵ i.e. the permanent character of the “licence”, the appropriate remuneration of the right holder, and the reseller making their copies unusable for after the resale – Case C-128/11 *UsedSoft GmbH v Oracle International Corp* EU:C:2012:407 at [87], [88].

While this shed some light in relation to works falling within the Computer Software Directive as a *lex specialis*, the works falling within the ambit of the InfoSoc Directive would still not be subject to digital exhaustion. This issue was discussed by the CJEU in relation to e-books in the *Tom Kabinet* decision.⁷⁶ There, the Court took a restrictive approach to digital exhaustion which can be explained from a historical and doctrinal point of view.⁷⁷ Mézei argued that such approach would lead to the “castration” of the exhaustion doctrine in the digital environment.⁷⁸

The First-Sale Doctrine under US law is based on judicial interpretation with the seminal US Supreme Court decision in *Bobbs-Merrill v. Straus*⁷⁹ of 1908 setting a precedent. It found its way into the U.S. Copyright Act in 1909 and saw several revisions in order to adapt to technological developments and the impact of international copyright law.⁸⁰ The first sale doctrine states that “the owner of a particular copy or phonorecord lawfully made under this title ... is entitled ... to sell or otherwise dispose of the possession of that copy or phonorecord.”⁸¹ In addition, the owner of a copy may also freely rent or lend her copy, unless these are phonograms and software. Reproduction and adaptation of a copy is generally not permitted, except a software copy where this is necessary “as an essential step in the utilisation of the computer program,”⁸² subject to certain limitations.

The law in the United States in relation to digital exhaustion is equally complex and different rules apply for different types of digital objects. The resale of digital music files was discussed by in the *Capitol Records, LLC v. ReDigi Inc.* decision⁸³ by the U.S. District Court for the Southern District of New York. ReDigi was an online marketplace for used digital music files which would permit the resale of songs bought on iTunes. To be considered to be permissible a transfer of possession rather than an impermissible reproduction of copies, the process involved migrating the users' file to the cloud computer so that the particular data would not exist in two places at one time. The Court, however, held these activities, inter alia, not to be covered by the first sale doctrine since they would also include the reproduction of files.⁸⁴ The First Sale doctrine, however, would only cover the distribution right. In relation to computer software, the first sale doctrine would seldomly apply. Both source and object code are considered as literary works since the inception of the Computer Software Copyright Act of 1980,⁸⁵ and would therefore fall within the ambit of 17 U.S. Code § 109. Software

⁷⁶ Case C-263/18 *Nederlands Uitgeversverbond and Groep Algemene Uitgevers v Tom Kabinet Internet BV* EU:C:2019:1111.

⁷⁷ e.g. the submission of AG Szpunar in *Tom Kabinet* EU:C:2019:1111- Opinion of AG Szpunar, 12 September 2019, at [56]–[63].

⁷⁸ Péter Mezei, ‘The Doctrine of Exhaustion in Limbo — Critical Remarks on the CJEU’s Tom Kabinet Ruling’ [2020] 2 *Zeszyty Naukowe Uniwersytetu Jagiellońskiego — Prace z Prawa Własności Intelektualnej* (Jagiellonian University Intellectual Property Law Review) 130 <<https://ssrn.com/abstract=3560138>> accessed 19 July 2022.

⁷⁹ *Bobbs-Merrill Co. v. Straus*, 210 U.S. 339, 350-51 (1908).

⁸⁰ Péter Mezei, *Copyright Exhaustion: Law and Policy in the United States and the European Union* (2nd. edn, Cambridge University Press 2022) 78.

⁸¹ 17 U.S.C. §109(a)

⁸² 17 U.S.C. § 117(a)(1).

⁸³ 934 F. Supp. 2d 640 (S.D.N.Y. 2013).

⁸⁴ “[T]he plain text of the Copyright Act makes clear that reproduction occurs when a copyrighted work is fixed in a new material object.” - *ibid* at 655.

⁸⁵ Act of Dec. 12, 1980, Pub. L. No. 96-517, § 10, 94 Stat. 3028.

producers, however, have sought to label the transaction between them and the purchasers as a licence which would not trigger the application of the first sale doctrine.⁸⁶

The above mentioned case law from both sides of the pond showcase the difficulties in placing concepts borne out of a brick-and-mortar world into the digital context. It appears that courts felt constrained by the current legal provisions. Thus, while some acknowledged the new realities of digital trade, others stuck with a very literal interpretation of the positive law. In addition, digitisation has generated issues surrounding legal classification, such as the query whether a digital transaction would constitute a sale or licensing agreement, the relationship between the distribution right to the communication right which is a stumbling block in the EU context,⁸⁷ and finally whether the particular transaction has goods or services as their object.⁸⁸ These issues require attention though might attract less relevance when the use of licensing will overtake sales contract in digital trade which usually occurs at subscription models, such as Netflix, Amazon Kindle or Spotify, where the exhaustion doctrine does not apply.

4.2. Making gatekeepers responsible: Online intermediary liability for IP infringements

Digitization in conjunction with an ever-faster internet created the fastest and most efficient copying machine.⁸⁹ This has had a severe impact on copyright industries as unauthorized reproductions of copyright works were difficult to address by copyright holders.⁹⁰ As attempts to go against individual infringers as a potential customer base⁹¹ did not appear to be the right move in addition to being a burdensome and often futile enterprise, the focus was shifted early on other parties which enable the infringing action, by for instance, providing technologies which enable the reproduction and dissemination of works. Such secondary liability occurs where a party contributes, in some relevant way, to other people's infringing actions.⁹² Many copyright cases in the past have dealt with photocopiers and to what extent the entity providing the photocopier to their customers could be held liable for copyright infringement.⁹³ The focus was also on producers of hardware

⁸⁶ Lothar Determann, 'Digital exhaustion : New Law from the Old World' [2018] Berkeley Technology Law Journal 177, 192.

⁸⁷ Other WCT signatories avoided these issues by opting to implement the making available right as a form of the distribution right - Wolf R. Meier-Ewert, Jorge Gutierrez, 'Intellectual Property and Digital Trade Mapping International Regulatory Responses to Emerging Issues' (World Trade Organization 2020) 31-32. <https://www.wto.org/english/res_e/reser_e/ersd202104_e.pdf> accessed 19 July 2022.

⁸⁸ Caterina Sganga, 'A Plea for Digital Exhaustion in EU Copyright Law' [2018] JIPITEC 212, 217-222.

⁸⁹ Former United States Register of Copyrights Marybeth Peters quoted in: Vic Sussman, 'Policing Cyberspace' (US News & World Report 23rd January 1995) <<http://all.net/cybercop/usnews1.htm>> accessed 19 July 2022.

⁹⁰ Alain Strowel, 'Introduction: peer-to-peer file sharing and secondary liability in copyright law' in Alain Strowel (ed), *Peer-to-Peer File sharing and Secondary Liability in Copyright Law* (Edward Elgar 2009) 1.

⁹¹ Andrew Murray, *Information Technology Law: The Law & Society*, (4th edn, Oxford University Press 2019) 328.

⁹² Martin Husovec, 'Remedies First, Liability Second: Or Why We Fail to Agree on Optimal Design of Intermediary Liability' in Giancarlo Frosio (ed), *Oxford Handbook of Online Intermediary Liability* (OUP 2020) 91.

⁹³ *Moorhouse v University of New South Wales* [1976] RPC 151 (High Court of Australia); *CCH Canadian Ltd. v. Law Society of Upper Canada*, [2004] 1 S.C.R. 339.

enabling the reproductions. The Betamax case⁹⁴ in the US and the Amstrad case in the UK⁹⁵ are examples of such litigation.

With regards to infringement occurring over the internet, a secondary liability claim against an intermediary may prove to be more efficient than going against individual infringers in a “whack the mole attempt” as it can reach across borders and may shift some costs onto intermediaries.⁹⁶ Thus, a trend towards ‘more’ secondary liability for online intermediaries can be perceived in the recent policy debates.⁹⁷ Early case law in relation to secondary liability targeted file sharing platforms. As such, the Napster decision in the United States marked an important turning point in shifting the focus away from individual users sharing the material to the platform facilitating this and other intermediaries.⁹⁸ Napster provided a central index server by which users were able to access an index of connected users and the files they would offer to share on their computer which facilitated the search and download of mp3 music files. Various record companies sued Napster. The Ninth Circuit⁹⁹ ultimately affirmed the ruling of the District Court for the Northern District of California which found Napster to be liable for contributory and vicarious infringement of the plaintiffs’ copyright. Another important decision in relation to intermediary liability was handed down by the US Supreme Court in its Grokster decision.¹⁰⁰ Grokster’s peer-to-peer filesharing system differed from Napster’s by allowing users to trade files directly thus skipping a centralised server, which lessened the control Grokster had over what occurred on its platform. The Supreme Court, nevertheless, found Grokster unanimously to be liable for copyright infringement due to inducing infringement by its users.

The examples above highlights, however, that some form of misconduct must be given to trigger secondary liability. In recent years, the creation of a third pillar of liability could be witnessed against innocent third parties that did not engage in any wrong doing themselves while still requiring wrongdoing of others.¹⁰¹ While they are usually not considered to be liable, certain obligations would be imposed in holding them accountable for assistance due to efficiency or fairness considerations.¹⁰² This leads to a regulatory conflict for legislators in aiming to safeguard intermediaries from liability for actions of the customers while providing an effective mechanism against online copyright infringement.¹⁰³ On both sides of the pond, this issue has been settled by so-called safe harbour

⁹⁴ *Sony Corp. of America v. Universal City Studios, Inc.*, 464 U.S. 417 (1984)

⁹⁵ *CBS Songs Ltd v Amstrad Consumer Electronics Plc* [1988] UKHL 15

⁹⁶ Graeme Dinwoodie, ‘A Comparative Analysis of the Secondary Liability of Online Service Providers’ in Graeme Dinwoodie (ed), *Secondary Liability of Internet Service Providers* (Springer 2017) 1-72, 16-17.

⁹⁷ Giancarlo F. Frosio, ‘From horizontal to vertical: an intermediary liability earthquake in Europe’ [2017] *Journal of Intellectual Property Law & Practice* 565–575, 565.

⁹⁸ Annemarie Bridy, ‘Why Pirates (still) won’t behave: Regulating P2P in the decade after Napster’ [2009] *Rutgers Law Journal* 565, 583.

⁹⁹ *A&M Records Inc v Napster Inc.*, 239 F. 3d 1004 (9th Cir. 2001).

¹⁰⁰ *MGM Studios Inc v Grokster Ltd*, 545 U.S. 913 (2005).

¹⁰¹ Martin Husovec, ‘Remedies First, Liability Second: Or Why We Fail to Agree on Optimal Design of Intermediary Liability’ in Giancarlo Frosio (ed), *Oxford Handbook of Online Intermediary Liability* (OUP 2020) 93.

¹⁰² Martin Husovec, ‘Remedies First, Liability Second: Or Why We Fail to Agree on Optimal Design of Intermediary Liability’ in Giancarlo Frosio (ed), *Oxford Handbook of Online Intermediary Liability* (OUP 2020) 93.

¹⁰³ Similar considerations apply to the liability of intermediaries for trade mark infringement - see: Irene Calboli, ‘Contributory trademark infringement on the Internet: Shouldn’t intermediaries finally know what they need to “know” and “control”?’ in John A. Rothchild (ed), *Research handbook on electronic commerce law* (Edward Elgar 2016) 211-231.

provisions. Such provisions can be found within the US DMCA and the EU-e-commerce Directive. Where they apply, internet service providers would be exempted from any liability caused by the actions of their users. In comparison to the US, which maintained a relatively broad scope of their "safe harbour" provisions and high threshold for triggering ISP liability,¹⁰⁴ the current EU framework appears to be more favourable for IP right holders due to a narrowing scope of the safe harbour in conjunction with an expanding use of injunctive relief against intermediaries.¹⁰⁵ The E-Commerce Directive provides for safe harbours for different actions.¹⁰⁶ However, the revisions of the framework with the recently enacted Directive on Copyright in the Digital Single Market along with its infamous article 17 on the liability of "online content-sharing service providers storing and giving access to large amounts of works" indicate that the responsibility of intermediaries has risen. While this new framework would not change the EU's safe harbour regime, it sets an enhanced liability regime which introduces new obligations and duties of care for intermediaries.¹⁰⁷ Maintaining compliance will inevitably incur cost and may disincentivise smaller companies,¹⁰⁸ thus increasing barriers to innovation.¹⁰⁹

5. Emerging Issues

The previous part highlighted some of the current matters that arise with IP and its enforcement in relation to digital trade. This part now wishes to look at some emerging issues which may impact and shape IP rights yet again. While Blockchain technology, also referred to as distributed ledger technology (DLT), was devised in the early 1990ies, it became most widely known when the person behind the pseudonym Satoshi Nakamoto promoted its use for the BitCoin cryptocurrency in 2009.¹¹⁰ The advantage of DLT is that it does not need a centralised authority to validate a particular piece of information, such as a transaction, as this is done decentralised¹¹¹ by consensus of nodes within a computer network.¹¹² It provides a data base where information is stored within a block, then chained onto a preceding block forming a chronological chain. Blockchain technology could have vast

¹⁰⁴ Wolf R. Meier-Ewert, Jorge Gutierrez, 'Intellectual Property and Digital Trade Mapping International Regulatory Responses to Emerging Issues' (World Trade Organization 2020) 24 <https://www.wto.org/english/res_e/reser_e/crsd202104_e.pdf> accessed 19 July 2022.

¹⁰⁵ Valentina Moscon, 'Free Circulation of Information and Online Intermediaries — Replacing One 'Value Gap' with Another' [2020] I.I.C. 977, 978.

¹⁰⁶ e.g., arts 13 (caching), 14 (hosting) and 15(1) (no general obligation to monitor) of Directive 2000/31 on certain legal aspects of information society services, in particular electronic commerce in the Internal Market [2000] OJ L178/1 (E-Commerce Directive).

¹⁰⁷ Maria Lillà Montagnani, 'A New Liability Regime for Illegal Content in the Digital Single Market Strategy' in Giancarlo Frosio (ed), *Oxford Handbook of Online Intermediary Liability* (OUP 2020) 309.

¹⁰⁸ Javier López González and Janos Ferencz, 'Digital Trade and Market Openness', OECD Trade Policy Papers No.217, (OECD Publishing 2018) 34 <<http://dx.doi.org/10.1787/1bd89c9a-en>> accessed 19 July 2022.

¹⁰⁹ Christophe Geiger, Giancarlo Frosio and Elena Izyumenko, 'Intermediary Liability and Fundamental Rights' in Giancarlo Frosio (ed), *Oxford Handbook of Online Intermediary Liability* (OUP 2020) 149.

¹¹⁰ Satoshi Nakamoto, 'Bitcoin: A Peer-to-Peer Electronic Cash System' (2008) <https://www.uscc.gov/sites/default/files/pdf/training/annual-national-training-seminar/2018/Emerging_Tech_Bitcoin_Crypto.pdf> accessed 19 July 2022.

¹¹¹ Primavera de Filippi and Aaron Wright, *Blockchain and the Law: The rule of code* (Harvard University Press 2018) 21.

¹¹² Sebastian Pech, 'Copyright unchained: How Blockchain Technology can change the Administration and Distribution of Copyright protected Works' [2020] *Northwestern Journal of Technology and Intellectual Property* 1-50, 10.

applications in relation to IP rights and enforcement. For instance, the creatorship of unregistered IP rights, such as copyright or unregistered design rights could be stored on a blockchain and may serve as evidence.¹¹³ They may also be used in customs enforcement where genuine goods are provided with scannable tags or engravings on products.¹¹⁴ In addition, the technology may be used in conjunction with smart contracts for the use of copyright works which would make receiving remuneration in real time by an accompanied smart contract possible.¹¹⁵ A crucial stumbling block for digital exhaustion and a resale market for digital IP assets elaborated above could be alleviated by DLT by guaranteeing some form of control of the files as to their origin. This would provide transparency in the transaction and foreclose the unlawful duplication of files.¹¹⁶ Finally, Blockchain technology and smart contracts could be used to overcome the fragmentation of the various national copyrights and the attached rights a particular work entails which would truly be a milestone in trade in digital IP assets. Thus, while there remain some doubts, e.g. as to whether the technology is genuinely safe by being “unhackable”¹¹⁷, the technology may have a transformative impact on copyright in the digital environment.¹¹⁸

Very much connected to DLT are so called non-fungible tokens (NFTs) which have become a buzzword as of lately. NFTs are a form of certificate on a suitable blockchain, such as the Ethereum blockchain, which indicate ownership and are supported by smart contracts.¹¹⁹ NFTs are currently used for digital collectibles but anything that can be represented digitally, including physical goods, can be turned (i.e. “minted”) into NFTs.¹²⁰ In comparison to other forms of tokens, NFTs are unique, i.e. non-fungible which attributes value to them.¹²¹ Some noticeable examples include an NFT of former Twitter CEO Jack Dorsey’s first tweet from 2006 which sold for an equivalent of 2.5 Million

¹¹³ In June 2018, the Hangzhou Internet Court permitted the use of blockchain-authenticated evidence in a copyright case in June 2018 - Kim Lu and Dong Ning, ‘China patent: Courts respond positively to blockchain evidence’, (Managing IP, 18th September 2019)

<https://www.managingip.com/article/2a5bssmgulfpv353htybk/china-patent-courts-respond-positively-to-blockchain-evidence> accessed 19 July 2022.

¹¹⁴ Birgit Clark and Ruth Burstall, ‘Crypto-Pie in the Sky? How Blockchain Technology is impacting Intellectual property Law’ [2019] Stanford Journal of Blockchain Law & Policy 252-262, 255.

¹¹⁵ Balázs Bodó, Daniel Gervais and João Pedro Quintais, ‘Blockchain and smart contracts: the missing link in copyright licensing?’ [2018] International Journal of Law and Information Technology 311–336, 324.

¹¹⁶ Péter Mezei, *Copyright Exhaustion: Law and Policy in the United States and the European Union* (2nd. edn, Cambridge University Press 2022) 193.

¹¹⁷ Birgit Clark and Ruth Burstall, ‘Crypto-Pie in the Sky? How Blockchain Technology is impacting Intellectual property Law’ [2019] Stanford Journal of Blockchain Law & Policy 252-262, 261.

¹¹⁸ Balázs Bodó, Daniel Gervais and João Pedro Quintais, ‘Blockchain and smart contracts: the missing link in copyright licensing?’ [2018] International Journal of Law and Information Technology 311–336, 336.

¹¹⁹ Sebastian Pech, ‘Copyright unchained: How Blockchain Technology can change the Administration and Distribution of Copyright protected Works’ [2020] Northwestern Journal of Technology and Intellectual Property 1-50, 12.

¹²⁰ Andres Guadamuz, ‘Non-fungible tokens (NFTs) and copyright’ (WIPO Magazine December 2021)

https://www.wipo.int/wipo_magazine/en/2021/04/article_0007.html accessed 19 July 2022.

¹²¹ Pinar Çağlayan Aksoy and Zehra Özkan Üner, ‘NFTs and copyright: challenges and opportunities’ [2021] JIPLP 115-126, 117-118.

US Dollars in 2021.¹²² Earlier that year the auction house Christie's sold an NFT of the digital artwork, 'Everydays: The First 5000 Days' by the artist Beeple for 69.3 million US Dollars.¹²³

Several IP issues relate to NFTs. With regards to copyright law, there is the question whether minting an NFT could attract copyright protection by regarding it as an artistic performance.¹²⁴ There is also the elephant in the room whether minting an NFT of a copyright protected work would constitute an infringement of the owner's exclusive rights. Here, it needs to be said that the NFT does not represent the work itself, so when one acquires a token over a work, then this does not transfer ownership of copyright in the underlying work.¹²⁵ It is rather a cryptographically signed form of receipt that one owns in relation to a particular work.¹²⁶ This means that only the communication right might potentially be infringed by linking the work,¹²⁷ while this may not arise to other rights, such as the reproduction or distribution right.¹²⁸ But the case law relating to IP and NFTs is currently making its way through the courts. The film director Quentin Tarantino is being sued by the film producers Miramax for creating NFTs over the scripts and scenes of the film "Pulp Fiction"¹²⁹ and a Chinese Court has found a NFT platform liable for contributory copyright infringement as one of its users created and sold a NFT digital work which was identical to the copyright protected work in the cartoon series "Fat Tiger".¹³⁰

The impact of digitisation has arguably been most profoundly felt in the area of copyright law. This is also the area where legislators and courts have had the chance to address this issue mostly. The emergence and proliferation of 3D printing technology, also referred to as additive manufacturing (AM), may shift other IP rights, such as patents, designs and trade marks more into the focal point

¹²² Alex Hern and Dan Milin, 'NFTs: the great rush may be over – but are they in actual decline?' (The Guardian 06th May 2022) <<https://www.theguardian.com/technology/2022/may/06/nfts-rush-decline-jack-dorsey-tweet>> accessed 19 July 2022.

¹²³ 'Beeple's opus' (Christie's) <<https://www.christies.com/features/Monumental-collage-by-Beeple-is-first-purely-digital-artwork-NFT-to-come-to-auction-11510-7.aspx>> accessed 19 July 2022.

¹²⁴ Pinar Çağlayan Aksoy and Zehra Özkan Üner, 'NFTs and copyright: challenges and opportunities' [2021] JIPLP 115-126, 121-122.

¹²⁵ The transfer of copyright may, however, still be encompassed but often needs to comply with certain formalities to have effect – Andres Guadamuz, 'Non-fungible tokens (NFTs) and copyright' (WIPO Magazine December 2021) <https://www.wipo.int/wipo_magazine/en/2021/04/article_0007.html> accessed 19 July 2022.

¹²⁶ William Holmes, 'What the NFT Craze Means for IP Law' (Legal Cheek, 12 March 2021) <<https://www.legalcheek.com/lc-journal-posts/what-the-non-fungible-token-craze-means-for-ip-law/>> accessed 17 July 2022.

¹²⁷ Pinar Çağlayan Aksoy and Zehra Özkan Üner, 'NFTs and copyright: challenges and opportunities' [2021] JIPLP 115-126, 123.

¹²⁸ Andres Guadamuz, 'Non-fungible tokens (NFTs) and copyright' (WIPO Magazine December 2021) <https://www.wipo.int/wipo_magazine/en/2021/04/article_0007.html> accessed 19 July 2022.

¹²⁹ Winston Cho, "Quentin Tarantino Tries for an Early Court Win in 'Pulp Fiction' NFT Legal Battle" (The Hollywood Reporter, 23rd June 2022), <<https://www.hollywoodreporter.com/business/digital/quentin-tarantino-nft-legal-battle-1235171174/>> accessed 19 July 2022.

¹³⁰ Xiao Baiyang, 'Shenzhen QiCeDieChu Cultural and Creativity Co. v Hangzhou Bigverse Technology Co. (2022)', [2022] Journal of Intellectual Property Law & Practice, jpac064, <<https://doi.org/10.1093/jiplp/jpac064>> accessed 19 July 2022.

with issues of digitization.¹³¹ With an ever-increasing range of applications, 3D printing can be a crucial element in a market for 3D-printable designs which are delivered digitally via the internet and finally manufactured close to the end-customer. The technology allows for customisation of the end product and also has benefits for the environment through digital storage and digital distribution in lieu of shipping tangible goods.¹³² Currently, the technology can be used for producing apparel, jewellery and home items but also for other, less “trivial” items, such as spare parts or medical devices.

3D printing technology has been around for some decades now and has initially been used for rapid prototyping.¹³³ The technology uses a digital file that can either be created from scratch using CAD technology or by scanning a real object and converting this to a digital file which can instruct the printer to replicate the object encompassed within the digital file.¹³⁴ Here, the clash between 3D printing and IP rights becomes clear: The technology can be used to reproduce objects protected by copyright, industrial designs, trade marks or even patents. The files containing the scanned objects which are needed to instruct the 3D printer may be disseminated over the internet and shared globally and therefore reproduced globally. These points do, to a certain degree, revisit the issues copyright law went through 2 decades ago with filesharing.¹³⁵ In relation to other IP rights, questions then arise as to whether the file containing the scanned and digitised object could constitute a patent, design or trade mark infringement. Would intermediaries be regarded as gatekeepers similar to the situation in copyright law? And can such obligation be constructed for IP rights that did not feel the effects of digitisation in the same way copyright has? EU registered design law, for instance, does not provide for indirect infringement provisions.¹³⁶ Another question relates to private uses which are currently privileged and exempted from infringement.¹³⁷ This has traditionally been explained by not affecting IP right holders when someone tinkers in their private home and does so for non-commercial purposes. But would this doctrine become obsolete once mass private 3D printing becomes a reality? These points only scratch the surface and many unanswered questions with this regard remain which need to be addressed by legislators and courts in the future.

6. Some concluding thoughts on international governance

¹³¹ See the relevant chapters in Dinusha Mendis, Mark Lemley and Matthew Rimmer (eds.), *3D Printing and Beyond: The Intellectual Property and Legal and Implications Surrounding 3D Printing and Emerging Technologies* (Edward Elgar 2018).

¹³² Marc Mimler, ‘3D printing, the Internet and patent law – A History repeating?’ [2013] *La Rivista di Diritto Industriale*, 352-370, 353.

¹³³ Matt Ratto and Robert Ree, ‘Materializing information: 3D printing and social change’ (First Monday, Volume 17, Number 7 - 2 July 2012) <<https://journals.uic.edu/ojs/index.php/fm/article/download/3968/3273>> accessed 19 July 2022.

¹³⁴ Marc Mimler, ‘3D printing, the Internet and patent law – A History repeating?’ [2013] *La Rivista di Diritto Industriale*, 352-370, 356.

¹³⁵ Marc Mimler, ‘3D printing, the Internet and patent law – A History repeating?’ [2013] *La Rivista di Diritto Industriale*, 352-370, 369.

¹³⁶ European Commission, Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs, ‘Legal review on industrial design protection in Europe : final report’ (Publications Office, 2016) 132 <<https://data.europa.eu/doi/10.2873/056970>> accessed 19 July 2022.

¹³⁷ Rosa Maria Ballardini & Nari Lee, ‘The Private and Non-commercial Use Defence Revisited: The Case of 3D Printing Technologies’ in Rosa Maria Ballardini, Marcus Norrgård and Jouni Partanen (eds), *3D Printing, Intellectual Property and Innovation Insights from Law and Technology* (Kluwer Law International 2017) 169-188.

Having discussed the operation of IP in digital trade, it becomes clear that its regulation requires international cooperation due to the global reach of the internet. Many of the discussed issues are still subject to national regulation and divergences inevitably lead to barriers to trade. This also applies to rules and regulations on internet governance where diverging national or regional approaches in general and in relation to IP protection affect the operations of businesses operating in multiple jurisdictions.¹³⁸ Regulatory challenges posed by digital technologies were initially tackled nationally, but the internet's globalness has shifted the focus on finding solutions on the international level.¹³⁹ Some of these international frameworks, such as the TRIPS Agreement, may be able to provide a multilateral framework for discussions preferable to a set of bilateral or regional responses which would lead to further fragmentation. This approach should also be prioritised over “made to measure” acts such as the ACTA which seek to safeguard specific regulatory issues which tend to oversee the wider societal issues at stake. In relation to digital trade and internet governance in the context of IP, these are issues such as freedom of expression and operations, but also wider cultural and political measures. This prohibits a trade specific context but mandates a wider perspective of all these interrelated issues.

7. Conclusion

This chapter has outlined the importance of intellectual property as a vital component of digital trade. It provides a means to commodify digital assets and has been the foundation of many new business models that create and exploit these. The chapter has also outlined the short fallings of adapting IP from a world of atoms to one of bits and bytes. Often, the solutions provided have been unsatisfactory by either not seamlessly fitting the digital era or by “overprotecting” IP rights which may negatively affect growth and innovation in this area. Regulators are tasked to seek workable global solutions that do not only overcome doctrinal reservations and provide holistic answers that must encompass wider societal issues and values but can also accommodate future technologies.

¹³⁸ Javier López González and Janos Ferencz, “Digital Trade and Market Openness”, (OECD Trade Policy Papers No.217, OECD Publishing, 2018) .34–35 <<http://dx.doi.org/10.1787/1bd89c9a-en>> accessed 19 July 2022.

¹³⁹ Mira Burri and Thomas Cottier, ‘Digital technologies and international trade regulation’ in Mira Burri and Thomas Cottier (eds), *Trade Governance in the Digital Age: World Trade Forum* (Cambridge University Press, 2012) 1–15, 2.