Creative Markets and Copyright in the Fourth Industrial Era:

Reconfiguring the Public Benefit for a Digital Trade Economy

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International Centre for Trade and Sustainable Development

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LIST OF ABBREVIATIONS

ACTA	Anti-Counterfeiting Trade Agreement
AI	artificial intelligence
CJEU	Court of Justice of the European Union
DMCA	Digital Millennium Copyright Act of 1988
DVR	digital video recorder
ICTs	information and communication technologies
IP	intellectual property
ITU	International Telecommunication Union
NAFTA	North American Free Trade Agreement
OECD	Organisation for Economic Co-operation and Development
RAM	random access memory
SDG	Sustainable Development Goal
TPP	Trans-Pacific Partnership
TRIPS	Trade-Related Aspects of Intellectual Property Rights
VCR	video cassette recorder
WCT	WIPO Copyright Treaty
WIPO	World Intellectual Property Organization
WPPT	WIPO Performances and Phonograms Treaty
WTO	World Trade Organization

FOREWORD

Over the past two decades, ICTSD has contributed with strategic inputs to a better understanding of the role of intellectual property. Our publications and dialogues have covered a wide range of issues, constantly guided by rigorous enquiries around intellectual property as a tool for innovation, development, and the pursuit of broader societal interests. Our aspiration has been to inform policymakers with evidence-based and policy-oriented analysis that assists in the implementation of intellectual property regimes consistent with sustainable development objectives and respectful of international commitments.

It is within this tradition that we are pleased to publish this issue paper on creative markets and copyright in the fourth industrial era. The paper's analysis on reconfiguring the public benefit is primarily focused on big data and artificial intelligence. Additional disruptive technologies associated with the so-called fourth industrial revolution and of importance to creative industries such as automation, cloud computing, machine learning, and robotics and are also discussed, while others including digital twinning, distributed ledger technologies, and the internet of things are not covered.

In the words of Professor Okediji, the paper's author: "The rise of big data and the increasingly widespread adoption of artificial intelligence across many industries have complicated our understanding of the values of twentieth-century intellectual property rules. If anything, the expected social costs (such as privacy) of new technology have already intensified debates—both global and national in scope—about the nature of rules that best foster innovation, facilitate access to public goods, and enable economic development. So far, policymakers across the world have focused on tinkering at the margins of copyright doctrines, rather than working on reconstituting the ways we regulate the creative economy."

Ruth Okediji, Jeremiah Smith Professor of Law at Harvard Law School, has been an important partner in ICTSD's journey of investigation into the role of intellectual property in an age of major technological transformations. As early as 2006, she contributed to this body of work with a seminal paper on the international copyright system and limitations, exceptions, and public interest considerations for developing countries.

In the present paper, Professor Okediji explores the fundamental questions facing the copyright system in the new industrial and digital era. She considers a broad range of issues including the evolving concept of authorship, originality, exhaustion issues, and the fair use or fair dealing doctrine in the new global context. The paper concludes with recommendations on how to redesign global copyright for innovation, competition, and inclusion.

We hope that you will find this stimulating and timely study useful to current policy discussions on innovation, intellectual property, and sustainable development in the digital era.

Ricardo Meléndez-Ortiz
Chief Executive, ICTSD

EXECUTIVE SUMMARY

A rapid succession of technological advances—big data, robotics, machine learning, and artificial intelligence (AI)—is steadily changing how firms engage in productive activity, how consumers interact, and how knowledge goods are acquired, shared, and governed. At least three issues highlight deepening tension between the explicit welfare objectives of trade policy and the existing architecture of global copyright law, which is the legal regime that shapes transactions in digital and information markets. These are AI's potential to transform the authorship focus of copyright law and its related originality doctrine, the diminution of the first sale doctrine as applied to digital goods, and threats to the fair use doctrine from a variety of technical and private law mechanisms, including technical protection measures and anti-circumvention law. These three issues highlight significant weaknesses of the international copyright framework, in particular its assumption that technological change and markets are most conducive to human well-being when property rights are maximally enforced.

The new technological frontier suggests that a more radical conception of global copyright norms will be necessary to preserve, and even advance, public benefit in an era of digital trade. As traffic in, and ownership of, knowledge goods are increasingly governed by private action rather than by legislation, it is clear that the global system insufficiently sets parameters that support equitable access to knowledge goods and, consequently, global digital trade routes. Longstanding advocacy efforts to push back on the global expansion of intellectual property (IP) rights have had limited impact on the explicit deference of the IP system to the guiding principles of the neoliberal agenda. Similarly, the strong consensus among economists and international institutions that in most cases neoliberalism has failed to deliver on its stated global welfare promise has not produced meaningful reform of international IP policy, even as firms struggle to develop business models that are adaptive to a rapidly changing and socially transformative technological frontier.

The overarching claim in this paper is that the global discourse about access to knowledge and cultural goods in the so-called Fourth Industrial Revolution must involve more than concern over the precise policy levers that best facilitate production of knowledge assets and whether a majority of the world's population can afford them. A profound challenge for copyright and information policy in a world of digital trade is how the technical design of the goods or services produced will transform the nature and quality of human engagement and productivity across private and public realms, especially in labour markets where the use of AI to accomplish simple and complex tasks previously done by humans is on the rise. Embedded in this question is how terms of access and participation in digital trade impair liberal values, such as privacy, freedom of expression, and civic participation, that are indispensable for the improvement of socioeconomic conditions. Those values must also ably influence the governance of the digital economy, including the rules applicable to the production, use of, and access to digital goods for the advancement of human welfare.

Three Challenges to the Design of Global Copyright Rules

Machine learning software systems, often referred to as a form of AI, can generate textual and visual works that might pass for human creations, but can a computer program be the legal author of a copyrightable work? As more creative tasks are delegated to machines that operate with less oversight, this question will only become more pressing, but its resolution is far from clear. The creative aspects of AI output are likely to originate in at least three places, each a potential locus for authorial rights: the software's programmer, the software's user, and, potentially, the software itself. AI also presents a challenge for copyright's originality standards: could an autonomous

computer program contribute the minimal creativity that is required to satisfy most jurisdictions' originality requirements? Originality is a relatively un-harmonised issue internationally: common-law countries tend to impose low requirements, while civil-law countries impose more demanding standards. Artificial intelligence may exacerbate these disjunctions.

The ascendency of AI marks a change in the production of knowledge goods that will demand a reassessment of copyright's incentive structure. Algorithmically driven creative works hardly need (much less require) the same incentives as human-authored works. If the economic argument for copyright is rationalised principally by the importance of securing optimal levels of production of knowledge goods, could the prospect of replacing human authors with machines radically alter the copyright policy calculus? If copyright incentives have facilitated the steady supply of knowledge goods, how should those incentives apply to machine-driven creations? Are there risks that strong incentives with minimum requirements for legal protection pose a threat of surplus production in a world of machine-creators? Regardless of how policymakers choose to reconcile machine authorship with longstanding legal doctrine nationally, a successful solution at the global level must facilitate alignment of business models with cultural markets to secure and stabilise the capacity for digital trade without diluting the welfare considerations indisputably linked to human engagement with the creative process. Ultimately, new approaches should urge a shift away from author-centric copyright regimes towards competition-focused policies.

A second considerable challenge for global copyright is the erosion of the first sale or "exhaustion" doctrine for knowledge goods and its consequences for digital trade. Exhaustion—the principle that a rights holder is not entitled to control downstream resales of IP-protected materials—has long facilitated the free exchange of goods worldwide. However, the very architecture of computer hardware may erode the traditional basis for the doctrine, as digital media creates copies (and, on some occasions, potentially derivative works) by technological necessity. Moreover, digital copies are not subject to manufacturing constraints or physical degradation. Perhaps as a consequence, licensing, rather than outright transfers of ownership, has emerged as a dominant paradigm for trading in digital goods like entertainment media and software. Licensing affords content owners more control over their works—and undergirds innovative services like Netflix, Amazon, and Spotify. But such control also threatens to eclipse the economic rationale underlying exhaustion and the entities and markets that depend on it by eliminating the ability for good-faith end users to benefit from a secondary market of any kind.

Finally, robust contestation over limitations and exceptions to copyright and, in particular, the once quintessentially American fair use doctrine, have significant implications for digital trade. Fair use is an open-ended exception that facilitates some unauthorised uses of copyrighted works. Rooted in English common law, the doctrine has enabled a wide range of interactions on the internet—from cultural and political engagement to economic transactions. Many of the permission-less innovations for which the digital age is known emerged from the tapestry of a rich fair use landscape. Image search engines, linking, and device interoperability, for example, all exist in large part because of limitations and exceptions to copyright, typified by a robust fair use/limitations and exceptions environment. In short, consumer-driven entitlements are an indispensable component of the digital economy. Strangely, however, the legitimacy, scope, and application of this copyright exception are deeply contested at the international level, and are far from harmonious from nation to nation. As digital trade reinforces patterns that make fair use less available as a legal defence for end users to assert—such as legal restrictions on the circumvention of technological protection measures, or extralegal copyright policing by online platforms—policymakers should consider designing rules that facilitate diverse forms of creativity.

Redesigning Global Copyright for Innovation, Competition, and Inclusion

Emerging technologies are reshaping the digital information economy by providing new means for creating, consuming, disseminating, and transacting in creative content. These changes underscore deficiencies in national and international copyright systems alike. Three factors are particularly salient. First, access to information and knowledge goods enabled by the internet, mobile networks, and new technological platforms have fundamentally altered the traditional contours of the innovation ecosystem by flattening the hierarchical nature of many of the economic structures that previously dominated the coordination of production. Second, this transformation embeds technology into zones of autonomy and liberty that require new policy approaches and legal instruments, challenging the one-size-fits-all model that copyright has historically used. And third is the reality that Fourth Industrial Revolution pressures, such as automation and digitisation, despite creating unprecedented opportunities to promote equitable distributive development may, instead, replicate or exacerbate existing technology and welfare gaps. This paper offers three observations about needed shifts in the extant regulatory model of international copyright law.

Copyright Law and Competitive Conduct

To effectively address these challenges, policymakers must reconceptualise copyright as neither a codification of authors' rights nor a lever for the creation of a professional creative class. Rather, copyright and information policy should be reconfigured as a set of core principles that regulate unfair conduct, promote flexibility in national economic planning, and foster norms that facilitate the production of knowledge goods and access to the global marketplace on competitive, rather than monopolistic, terms. Thus far, copyright law has been a hindrance to these values, partly because it leaves governance of the information ecosystem to private actors aided by continuing industry consolidation. Private firms that reaped tremendous gains by leveraging copyright limitations and exceptions to transform traditional copyright industries are now essential arbiters of the new technologically mediated production processes that impact digital trade globally. How these firms may be regulated in future is important to the competitive balance necessary to support a progressive vision of the public benefit in a world of digital trade.

Progressive Disharmonisation

Aided by software, the exhaustion doctrine, and limitations and exceptions to copyright, the Fourth Industrial Revolution was catalysed in the sectors least regulated by harmonised norms derived from the international copyright framework. New platforms for creating and consuming information have left the political, the cultural, and the innovative spheres inextricably intertwined and new technologies have enabled productive spaces not easily characterised in binary terms such as "public" or "private," "commercial" or "personal." Creativity takes place within and across all these arenas, utilising formal and informal routes to transmit and share data, resources, and ideas. Today's copyright should enable—even compel—countries to pursue, within the boundaries of competitive fairness, policies that prioritise creative liberty, civic autonomy, cultural engagement, and access to knowledge, as the fundamental values that will underpin a competitive and equitable creative economy. In other words, copyright's non-economic justifications that are rooted in personal autonomy might need greater amplification in reconfiguring the boundaries of the public benefit that should flow from copyright law.

Should freedom of commerce, competition, liberty, freedom of expression, and other values of personhood become agreed-upon policy priorities, such considerations impel a pivot away from traditional harmonisation efforts, and towards the progressive disharmonisation of copyright

regimes. Copyright's orthotic sympathy for the human author could then be translated into a meaningful commitment to improve the capacity of national governments to facilitate welfare gains among consumers. To accomplish this goal, progressive disharmonisation should become a conscious design feature of a new global copyright framework.

Rethinking Institutional Arrangements

Political and social institutions matter a great deal in the array of policy choices available to countries. These institutions also matter significantly in the context of multilateral norm-setting processes. The International Telecommunication Union (ITU) is the specialised agency of the United Nations responsible for information and communication technologies (ICTs). Although the World Intellectual Property Organization (WIPO) is singularly responsible for international copyright norm-setting, the role of the ITU is significant in the design of the global regulatory framework for the digital economy.

The intimate relationship between content production and the regulation of technology platforms profoundly affects the extent to which new technologies will shape competitive conditions and, ultimately, social inequality. Norm-setting activities in WIPO must increasingly account for the regulation of online platforms and, in turn, how those platforms react and interact with the copyright regime. Public attention should turn to the current institutional arrangements (and corresponding allocations of power) to examine the possibility that greater coordinated institutional activities and formal recognition of the ITU's expertise might yield dynamic global norms that fuel a reorganisation of copyright's role in digital trade. Institutional interventions by the ITU in the copyright framework, in coordination with WIPO's activities, can produce a technologically informed approach to copyright norms, and, in turn, elicit greater alignment between information policy and copyright law.

Conclusion

Throughout the twentieth century, firms were organised around rules that defined ownership of ideas, expression, and other forms of knowledge almost entirely in exclusive terms. IP rules were designed for, and matured in, an industrial age characterised by hierarchical systems of production that facilitated competitive cross-border trade in goods and services. At the same time, the need for global norms in a territorially defined IP/innovation environment was a key aspect of burgeoning trade relations. Accordingly, the international legal framework established in the late nineteenth century was consolidated and further strengthened in the Trade-Related Aspects of Intellectual Property Rights (TRIPS) Agreement. These heftier rules in the TRIPS Agreement reconfigured the terms of access to knowledge goods in ways that increased the technological gap between the global south and the global north and resulted in wealth transfers to net exporters of technology.

The technologies of the Fourth Industrial Revolution may produce the same outcomes, despite how revolutionary and beneficial those technologies are expected to be to the creative process. The vintage IP rules that were expanded in the 1994 economic détente, symbolised by the TRIPS Agreement, clearly reflect certain convictions about how societies should be organised. But there is nothing inevitable about the social and economic outcomes engendered by current IP regimes. The immense welfare prospects digital trade portends ideally must yield changes in national and international copyright policy—changes that can be translated into an enhanced capacity for consumers to engage meaningfully in productive activities, whether in economic, political, or social engagement. In the end, technological advances that drive digital trade will be judged not only by increased levels of production, but also in light of norms that support and facilitate inclusive innovation and human development.

1. INTRODUCTION

At the close of the twentieth century, policymakers grappled with how best to design trade rules that would defend developed-world innovation from free riders. The developed countries argued that innovation would suffer without the discipline of mandatory global rules to safeguard knowledge-based goods.[1] Barely 25 years later, data and data-processing techniques—not knowledge as such—have defined a new innovation frontier, with profound implications for trade rules. Big data, automation, and advances in artificial intelligence (AI) are upending how firms conduct economic activities, how citizens participate in cultural and political processes, how creative engagement takes place, and how routine daily decisions are made as functions are carried out not only by humans but also increasingly by machines.

The rise of big data and the increasingly widespread adoption of AI across many industries have complicated our understanding of the values of twentieth-century intellectual property (IP) rules. If anything, the expected social costs (such as privacy) of new technology have already intensified debates—both global and national in scope—about the nature of rules that best foster innovation, facilitate access to public goods, and enable economic development.[2] So far, policymakers across the world have focused on tinkering at the margins of copyright doctrines, rather than working on reconstituting the ways we regulate the creative economy.

In this paper, I highlight the critical role that digital trade in copyrighted goods plays in the global economy and use as examples two fundamental doctrines implicated by burgeoning markets in digital trade: (1) authorship and copyrightable subject matter, with a focus on machine-generated output by AI; and (2) limitations and exceptions to copyright, with a particular emphasis on the fair use doctrine and first sale doctrine. Given an appropriate global regulatory framework, copyright law can, and should, play an essential role in reducing digital trade barriers, thereby enabling domestic welfare agendas that ably support of new forms of creative enterprise. Predictable copyright rules, tempered by flexible and accessible limitations and exceptions, will buttress creativity in the midst of changing technological paradigms. Indeed, copyright doctrines can enhance consumer freedom and choice by fostering creativity not only in the production of goods, but also in spheres in which such creativity might not otherwise occur. This paper discusses not only why that is the case, but why prioritising that line of thinking will lead to a more competitive and equitable international creative economy.

There is, of course, evidence of the continued power of traditional IP. Trends in IP filings are quite strong, with some indicators showing significant growth, confirming the ongoing expectation of the strategic value of IP protection. In 2016, over 3 million patent applications were filed—the most ever filed in a single year and showing an 8.3 percent growth over the previous year.[3] Similarly, applications for trademarks grew a reported 16.4 percent in 2016.[4] The increase in filings occurred in developed and in developing countries alike

1 See e.g. *Intellectual Property and the National Information Infrastructure*, Information Infrastructure Task Force (1995), 130–31 ("Development of the [Global Information Infrastructure] will make copyright laws and international copyright rules a concern for every user... The complexity that such a system creates will make 'electronic commerce' over the information superhighways difficult unless the United States moves promptly to identify needs for protection and initiates efforts to work toward a new level of international copyright harmonization").

2 New technologies also have significant implications on surveillance capabilities and the privacy interests of consumers. For a more in-depth discussion, see O'Brien, David, Budish, Ryan, Faris, Robert, Gasser, Urs and Lin, Tiffany, *Privacy and Cybersecurity Research Briefing*, Berkman Klein Center Networked Policy Series (26 September 2016), available at http://ssrn.com/ abstract=2842801.

3 *World Intellectual Property Indicators 2017*, World Intellectual Property Organization (2017), available at http://www.wipo.int/edocs/pubdocs/en/wipo_pub_941_2017.pdf.

4 *Id.* at 98.

and, according to the World Intellectual Property Organization (WIPO), represents the sixth consecutive year of growth for patents and trademarks. International norm-setting activities targeting business interests also continue, expanding into new areas. One example is the most recent iteration of a contested proposal for a new Design Law Treaty. A so-called "formalities" instrument, the proposed Design Law Treaty is meant to facilitate the acquisition of design protection in global markets. Similarly on the trade front, despite the failure of the Doha Round and weakened multilateralism, IP protection remains a key priority issue in bilateral and plurilateral trade agreements.[5]

But despite its ostensible resilience, the historical IP landscape of the nineteenth and twentieth centuries, and the technologies that shaped its evolution, are encountering unprecedented tensions in an era where automation, electronics, and information technologies rule the innovative sphere.[6] Quantum computing, AI, autonomous and semi-autonomous vehicles, and 3D printing underscore the ways in which the technology sector is advancing so far forward that the boundaries between the physical and digital worlds are beginning to blend in transformative and systemic ways.[7] Knowledge-based capital and the digital economy comprise the epicentre of this "Fourth Industrial Revolution."[8] In particular, the tension created at the intersection of digital trade, or e-commerce, and the global copyright framework has built momentum to explore the possibility of copyright reform and policy experimentation, at both national and international levels.[9]

Copyright appears to play a less visible role in today's environment, in part because alternative means of controlling consumer behaviour and of creating economic rent have emerged. Thanks to innovative content delivery platforms, consumers worldwide

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5 See e.g. North American Free Trade Agreement art. 1701, 8 December 1993, H.R. Doc. No. 103-159.

6 See generally "Synthesis Report," in *Enquiries into Intellectual Property's Economic Impact*, Organisation for Economic Co-operation and Development (OECD) (2015), available at http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=DSTI/ICCP(2014)17/CHAP1/FINAL&docLanguage=En.

7 See Araya, Daniel and Lamb, Craig, *Surfing the 4th Industrial Revolution: Artificial Intelligence and the Liberal Arts*, Brookings Institute (2017), available at https://www.brookings.edu/blog/brown-center-chalkboard/2017/04/11/surfing-the-4th-industrial-revolution-artificial-intelligence-and-the-liberal-arts/ (highlighting a growing trend to group the arts with traditional science, technology, engineering and mathematics fields because "[b]uilding on digital computing systems, new ... technologies like 3D printing and robotics will mean extensive opportunities for artists and designers with a capacity for innovation and an understanding of human experience"). Synthetic biology has enabled scientists to determine functional elements of biological systems and organise them in new ways, including to build living systems from raw inputs. Translational synthetic biologists are redesigning gene sequences and organisms to produce better or new functionality. Commercial activity in synthetic biology spans the gamut from small startups to "traditional" multinational firms engaged primarily in the production of goods for global trade. Bagley, Margo A., "Dematerializing Genetic Resources: Synthetic Biology, Intellectual Property, and the ABS Bypass," in McManis, Charles R. and Ong, Burton, eds, *Routledge Handbook of Biodiversity and the Law* (2017); Bagley, Margo A. and Rai, Arti K., *The Nagoya Protocol and Synthetic Biology Research: A Look at the Potential Impacts* (2013), available at https://scholarship.law.duke.edu/faculty_scholarship/3230/.

8 See Schwab, Klaus, *The Fourth Industrial Revolution: What It Means, How to Respond*, World Economic Forum (2016), available at https://www.weforum.org/agenda/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond/; see also Baller, Silja, Dutta, Soumitra and Lanvin, Bruno, eds, *The Global Information Technological Report 2016*: *Innovating in the Digital Economy*, World Economic Forum (2016), 39, available at http://www3.weforum.org/docs/GITR2016/WEF_GITR_Full_Report.pdf ("Just as the digital revolution was built on the heart of the second industrial revolution—electricity, mass communication systems, and modern manufacturing—the new systems that mark the Fourth Industrial Revolution are being built on the infrastructure of the third, digital revolution—the availability of global, digital communications; low-cost processing and high-density data storage; and an increasingly connected population of active users of digital technologies").

9 See generally Cohen, Julie E., "Copyright as Property in the Post-Industrial Economy: A Research Agenda," *Wis. L. Rev.* (2011), 141 (discussing copyright's role in the digital information economy); see also *Green Paper on Copyright Policy, Creativity, and Innovation in the Digital Economy*, Department of Commerce Internet Policy Task Force (2013), 35-6, available at https://www.uspto.gov/sites/default/files/news/publications/copyrightgreenpaper.pdf [hereinafter Green Paper].

have unprecedented access to vast amounts of information, new forms of collaboration, and new modes of expressive engagement. At first blush, these businesses appear to be built upon private ordering, rather than the guarantees of a proprietary model, such as copyright legislation.

However, copyright's diminished visibility belies its growing influence on international digital trade, defined by the Organisation for Economic Co-operation and Development (OECD) as involving "both physically delivered and digitally delivered trade: digitally enabled purchases of e.g., software, e-books, data or database services; or digitally enabled but physically delivered goods and services (such as a purchase of a good on an on-line marketplace or the booking of a hotel through a matching service),"[10] or to give up personal information in exchange for access to information or other services. New business models may appear to eschew IP rules in favour of bespoke end-user licensing arrangements, but in reality these practices derive from a property discourse that legitimises control over consumer choices. In other words, consumers may have far greater access to information, but that access is typically accompanied by greater requirements to conform to specified codes of conduct, dictated by technological or contractual design.[11] As these frameworks supplant national legislation, they also jeopardise equality, compromise economic security, and compel end users to cede autonomy, privacy, and other indicia of liberal society. In short, where technologies and property rules stop short, private contractual obligations fill the gaps. Today, the legal vacuum in critical areas affecting digital economic development is at least as consequential as positive copyright law was in decades past.

Across all regions, policymakers have tinkered at the margins of copyright doctrines, rather than reimagine alternative ways to regulate creativity and the nature of authorial enterprise for greater productive gain in the digital environment. At least three developments compel consideration of how copyright law (and, increasingly, information policy) can achieve its structural[12] and welfare functions in the new innovation and production landscape. First, access to information and knowledge goods enabled by the internet, mobile networks, and new technological platforms has fundamentally altered the traditional contours of the innovation ecosystem by making possible and encouraging more collaborative forms of production that undermine conventional economic structures.[13] The rapid pace of computation makes software transformation of industries a threat to the established rules of knowledge production that historically have defaulted around modalities of control, access, and exclusion.[14]

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10 *Towards a G20 Initiative on Measuring Digital Trade: Mapping Challenges and Framing the Way Forward*, Organisation for Economic Co-operation and Development (OECD) (2016), available at https://www.oecd.org/g20/summits/hamburg/Towards-a-G20-Initiative-on-Measuring-Digital-Trade.pdf; see also *Digital Trade in the US and Global Economies: Part 2*, United States International Trade Commission (2014), 27, available at https://www.usitc.gov/publications/332/pub4485.pdf (defining digital trade as "domestic commerce and international trade conducted using Internet-based Technologies"); *Work Programme on Electronic Commerce*, T/L/274, World Trade Organization (30 September 1998) (defining the term "electronic commerce" broadly enough to cover "the production, distribution, marketing, sale or delivery of goods and services by electronic means").

11 For a discussion of copyright's "balance between authors and the public" see Cohen, Julie E., "Configuring the Networked Self," in *Law, Code, and the Play of Everyday Practice* (2012), 61; this greater access to information is also often accompanied by an agreement to surrender one's personal information. For further discussion, see Wu, Tim, "The Tyranny of Convenience," *New York Times* (16 February 2018).

12 See generally Weinstock Netanel, Neil, "Copyright and a Democratic Civil Society," *Yale L. J.* (1996), 283:106.

13 See generally Benkler, Yochai, "Coase's Penguin, or, Linux and the Nature of the Firm," *Yale L. J.* (2002), 112:369.

14 *Id.* at 436.

Second, technology is not just more powerful; it is also pervasive, spreading to a broader range of human activity, and implicating zones of autonomy and liberty that require new policy approaches and legal instruments. Moreover, as consumers worldwide steadily pivot to screen-intensive lifestyles and embrace (or acquiesce to) more intrusive business models, creative industries—such as music, film, television, books, software, and the visual arts—have been forced to adapt to new market forces and changing consumer demands.[15] The one-size-fits-all model of copyright law, adopted in the international arena, does not lend itself to retrofitting copyright principles in ways that address specific sectoral or industry considerations. As a consequence, international copyright norms that were once unassailable, and that formed an indispensable part of the 1994 global trade rules, now appear either irrelevant or incapable of addressing the new legal, social, and economic issues associated with a new and rapidly evolving technological frontier.

Third is the reality that internet technologies and digital innovation patterns continue to be as unevenly distributed and enjoyed nationally as globally.[16] Sharp increases in automation and digitisation, despite unprecedented opportunities to radically transform prospects for more evenly distributed development, may instead replicate or likely exacerbate existing technology and welfare gaps, undermining national strategies for growth and compromising achievement of the sustainable development goals (SDGs).[17] Given how actively rules governing information goods—including copyright rules—shape economic productivity and impact social welfare, the intersection of digital trade and copyright warrants new attention.[18] In particular, knowledge goods remain underutilised drivers of economic growth, particularly in the developing world. This is partly due to the failure of transplanted legal frameworks ill-equipped to recognise or support creative cultures that deviate from the single-author (largely European) model around which most of copyright's doctrines were designed, a model that is increasingly undermined by today's digital reconstitution of the creative economy.[19] The prospects of significant social and economic transformation powered by technologies that enable and compel new types of creative endeavour could offer fresh insight and new opportunities to encourage access to and engagement with new collaborative forms of production, new models of access and distribution, and new business strategies.

Two copyright doctrines seem especially meaningful in the context of burgeoning markets in digital trade, and they demonstrate the ongoing pivotal role of copyrighted goods in the global economic order: (1) the effect of machine-generated output by AI systems on authorship and copyrightable subject matter; and (2) limitations and exceptions to copyright, with a special emphasis on the fair use doctrine and first sale doctrine. In the following sections, I also offer a brief critical commentary on the largely sanguine view of non-proprietary models of knowledge production. In brief, open networks, commons, and quasi-commons—even the public domain—can, like markets, produce inequality and exacerbate tensions arising from new forms

15 See generally "Copyright in the Digital Era 5," in *Enquiries into Intellectual Property's Economic Impact*, Organisation for Economic Co-operation and Development (OECD) (2015), available at http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=DSTI/ICCP(2014)17/CHAP1/FINAL&docLanguage=En.

16 According to the 2016 Measuring the Information Society Report, 20–40 percent of citizens of some least developed nations still do not own a mobile phone, and the gender gap in mobile phone ownership is even higher. *Measuring the Information Society Report 2016*, International Telecommunications Union (2016), iii, available at http://www.itu.int/en/ITU-D/Statistics/Documents/publications/misr2016/ MISR2016-w4.pdf.

17 See Sustainable Development Goals, United Nations, available at https://sustainabledevelopment.un.org/?menu=1300.

18 See OECD, *supra* note 15 at 5 (describing as a "key challenge" the fact that "[c]opyright appears to be the type of IP that has been attracting business investment at the highest growth rate and it is undergoing statutory review in many countries, yet there are fewer empirical studies about copyright than about patents. Encouraging and enabling the collection and availability of more data on copyright would facilitate data-driven copyright policy").

19 *Id.* at 6.

of economic power.[20] Specifically, the rise in the use of contract law to create commons often results in circumvention of statutory guarantees in domestic copyright regimes that facilitate downstream innovation. The continued efforts to expand, harmonise, and strengthen copyright rules, and the limits of traditional copyright doctrines for collaborative forms of innovation undermine not only the deliberate policy objectives of copyright law but also growth in digital trade and human welfare goals.

20 See generally Benkler, Yochai, *A Political Economy of Oligarchy: Winner-Take-All Ideology, Superstar Norms, and the Rise of the 1%* (2017), available at http://www.benkler.org/Political%20economy%20of%20oligarchy%2001.pdf; see also Chander, Anupam and Sunder, Madhavi, "The Romance of the Public Domain," Calif. L. Rev. (2004), 92:1331; Pessach, Guy, "Beyond IP: The Cost of Free—Informational Capital in a Post-IP Era," *Osgoode Hall L. J.* (2016), 54:225.

2. COPYRIGHT IN THE FOURTH INDUSTRIAL ERA

Envisioned as a mechanism to stimulate creativity,[21] copyright is the branch of IP law designed to maintain a dynamic equilibrium between (1) a robust public domain of ideas to inspire new and original works of creative expression; and (2) a limited-term monopoly of protection that allows creators to disseminate their works while simultaneously recovering their private investment.[22] Under this dominant, utilitarian logic—and in an effort to strike a balance between these competing goals—the structure of copyright and its exceptions and limitations have been forced time and time again to adapt to changing modes of artistic expression and novel methods of content distribution.[23] Indeed, since its early eighteenth-century inception with the Statute of Anne,[24] copyright law has evolved in response to the forces of technological change,[25] largely to address issues central to authorial interests in ownership and control of knowledge goods.

Copyright law, like the other branches of IP, has an important connection to global trade and innovation trends.[26] Since the conclusion of the Great Conventions in the nineteenth century, the international community has proceeded on the assumption that property-like incentives are necessary to support optimal levels of knowledge creation.[27] Knowledge goods have been among the most significant drivers of societal wealth and well-being since the pre-industrial era, and the incentive view of intellectual property has remained a fixture of global approaches to innovation. However, building on foundational twentieth-century gains in the harnessing of electricity, the advent of digital technologies—and particularly the internet—have inspired a seismic and compounding shift in the production, distribution, and market for copyrighted goods that render the incentives narrative a weaker justification than once was the case[28]

Perhaps no other technological advance has affected traditional copyright principles and industries more profoundly than the new norms

21 See e.g. US Constitution, art. 1, § 8, cl. 8 ("Congress shall have power ... [t]o 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"); see also *Fogerty v. Fantasy*, Inc., 510 US 517, 524 (1994) ("[The] primary objective of the Copyright Act is to encourage the production of original literary, artistic, and musical expression for the good of the public... ").

22 See *Twentieth Century Music Corp. v. Aiken*, 422 US 151, 156 (1975) ("The immediate effect of our copyright law is to secure a fair return for an 'author's' creative labor. But the ultimate aim is, by this incentive, to stimulate artistic creativity for the general public good"); see also *WIPO Intellectual Property Handbook: Policy, Law and Use*, World Intellectual Property Organization (2004), 41, available at http://www.wipo.int/edocs/pubdocs/en/intproperty/489/wipo_pub_489.pdf (arguing that the incentive theory "is something that society must necessarily accept if it wishes to encourage intellectual creativity, to ensure the progress of the sciences, the arts and of knowledge in general, to promote the industry using authors' works and to render it possible to distribute such works in an organized manner among the widest possible circle of interested persons").

23 See generally Wu, Timothy, "Copyright's Communications Policy," *Mich. L. Rev.* (2004), 103:278.

24 8 Ann., c. 19, § 1 (1710) (Eng.)

25 See e.g. S. Rep. No. 105-190, at 2 ("Copyright laws have struggled through the years to keep pace with emerging technology from the struggle over music played on a player piano roll in the 1900's to the introduction of the VCR in the 1980's. With this constant evolution in technology, the law must adapt in order to make digital networks safe places to disseminate and exploit copyrighted materials").

26 Cf. OECD, *supra* note 15 at 5 (describing how copyright is the branch of IP "attracting business investment at the highest growth rate," but nonetheless "there are fewer empirical studies about copyright than about patents").

27 See Okediji, Ruth L., "The Regulation of Creativity Under the WIPO Internet Treaties," *Fordham L. Rev.* (2009), 77:2379,2380.

28 Cf. Montagnani, Maria Lillà, "A New Interface Between Copyright Law and Technology: How User-Generated Content Will Shape the Future of Online Distribution," *Cardozo Arts Ent. L. J.* (2009), 26:719,721, (expounding upon the ways in which "technology challenges copyright law" the tendency for "copyright law ... to react initially by fighting and subsequently by encompassing the new ways of exploiting copyrighted works developed by the new technologies, when necessary through reform of the law").

of communication and information sharing inspired by digital computing.[29] Not only do online networks represent new, and profoundly efficient, modes of mass distribution (for both physical and digital goods), but they have also created entirely new opportunities for, and forms of, expression (such as digital mashups, music remixes, and collective fan fiction) and content-delivery business models (such as Spotify, Netflix, and Amazon Kindle).[30] Because the internet empowers both consumers and producers of content to move data at an extraordinary speed across the globe, people (and machines)[31] are copying, deleting, forwarding, viewing, altering, sharing, and manipulating data at an unprecedented rate for political, personal, social, and commercial gain.[32]

One of the most important consequences of the internet has been its ability to dismantle, if not permanently reorient, previous barriers to trade in goods and services.[33] Since the reconstitution of innovation as primarily a private enterprise, reflected in the Uruguay Round Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS),[34] digital trade has expanded at an unprecedented rate, catapulting global markets into what is now known as the "zetabyte era."[35] In the US alone, e-commerce shipments made by US manufacturers was US$ 3,469.6billion in 2016, comprising 64.8 percent of all shipments made by US manufacturers.[36] Globally, about 50 percent of all traded services are now facilitated by technological innovation, including the enabling of cross-border data flows.[37] The digital platform

29 See The Digital Dilemma: *Intellectual Property in the Information Age*, National Research Council (2000), 94–5,129–44.

30 See McMahon, Kris, "The Current State of Digitized Images Necessitates Congressional Action to Protect Authors and Content Providers from Online Infringement," *Suffolk U. L.* (2016), 49:469,486 ("Since the printing press, the most revolutionary copyright law problem is the digitization of content in conjunction with the public's insatiable desire to access and share that content online. Digitalization's ease, speed, and low cost, combined with the permanence of Internet posts and effortlessness of online distribution, create significant concern for copyright holders. Technology's affordability and Internet's breadth give users 'unprecedented power to access, store, manipulate, reproduce, and distribute content' [internal citations omitted]").

31 See Chui, Michael, Loffler, Markus and Roberts, Roger, "The Internet of Things," *McKinsey Quarterly* (2010), http://www.mckinsey.com/industries/high-tech/our-insights/the-internet-of-things ("In what's called the Internet of Things, sensors and actuators embedded in physical objects—from roadways to pacemakers—are linked through wired and wireless networks, often using the same Internet Protocol (IP) that connects the Internet… What's revolutionary in all this is that these physical information systems are now beginning to be deployed, and some of them even work largely without human intervention").

32 See e.g. O'Donnell, Catherine, "New Study Quantifies Use of Social Media in Arab Spring," *U. W. News* (12 September 2011), available at http://www.washington.edu/news/2011/09/12/new-study-quantifies-use-of-social-media-in-arab-spring/ (including a full link to the report).

33 See World Economic Forum, *supra* note 8 at xii–xiii (highlighting the report's key findings).

34 See Agreement on Trade-Related Aspects of Intellectual Property Rights, 15 April 1994, 1869 U.N.T.S. 299. The TRIPS Agreement is well-known for having harmonised IP rights in such a way that benefits corporate actors. For further discussion, see Baker, Dean, Jayadev, Arjun and Stiglitz, Joseph, *Innovation, Intellectual Property, and Development: A Better Set of Approaches for the 21st Century*, AccessIBSA (2017), available at https://www8.gsb.columbia.edu/faculty/jstiglitz/sites/jstiglitz/files/IP%20for%2021st%20Century%20-%20EN.pdf.

35 This means that in 2016 global online traffic reached 1.1 zettabytes, or over 1 trillion gigabytes. See World Economic Forum, *supra* note 8 at 39.

36 E-Stats 2016: *Measuring the Electronic Economy*, United States Census Bureau (2018), https://www.census.gov/content/dam/Census/library/publications/2018/econ/e16-estats.pdf. The United States, the most active digital trader globally, is home to the largest digitally intensive firms, who sold approximately US$ 935.2 billion in products and services and purchased US$ 471.4 billion in products and services over the internet in 2012. United States International Trade Commission, *supra* note 10 at 13. According to the OECD, 90 percent of this online commercial activity stems from business-to-business transactions, a figure hardly surprising given the fact that 95 percent of small and large firms in OECD countries have broadband connection. See *OECD Digital Economy Outline 2015 (Summary)*, OECD (2015), 1, available at http://www.keepeek.com/Digital-Asset-Management/oecd/science-and-technology/oecd-digital-economy-outlook-2015/summary/english_19d38fa8-en#.WXU3EnXytBw#page1. Individual broadband access lags behind at a global penetration rate of about 50%. See *We Are Social*, *supra* note 14.

37 Manyika, James et al., Digital Globalization: *The New Era of Global Flows*, McKinsey Global Institute (2016), 2, available at http://www.mckinsey.com/businessfunctions/mckinsey-digital/our-insights/digital-globalization-thenew-era-of-global-flows.

is a tremendous source of economic growth and development; the United States International Trade Commission estimates that digital trade has increased US gross domestic product by 3.4–4.8 percent.[38] This exponential growth of e-commerce markets has resulted in a similarly strong expansion of the global economy, which has experienced a 6.6-fold increase—from US$ 11.1 trillion to US$ 73.5 trillion—since 1980.[39] With all signs pointing to a continued expansion of online markets, analysts project digital trade sales to surpass US$ 3.5 trillion by 2021.[40]

2.1 The Case for Disharmonisation

Unsurprisingly, the paradigm shifts in information exchange and market operation set into motion by the internet have in turn sparked intense legal and social reordering.[41] In particular, as society has grown increasingly dependent on new technology and digital norms to order social, economic, and political engagement, so too has interest in trade barriers and disruptions in digital data flows, such as emerging data localisation policies,[42] become especially acute.[43] On the one hand, digital platforms have been a force for positive change and societal development,[44] inspiring the creation of new markets for knowledge goods and knowledge dissemination, new revenue streams for content owners, and enhanced productivity for industries that span the economic spectrum.[45] On the other hand, online tools have fostered an environment where legitimate markets for goods and services—particularly those within the copyright intensive industries—have been threatened by legal ambiguity, regulatory incoherence, interruptions in online traffic, and piracy.[46] The challenge, then, for governments and international institutions is to evaluate whether existing legal frameworks that govern knowledge- and information-intensive industries are suitable for supporting or facilitating the expansion of online markets and digital trade in a manner that avoids social exclusion. Put differently, the organising question for global knowledge governance is whether the pre-digital legal architecture is meaningful in a world with new forms of economic activity characterised by collaboration and organised nodes, such as peer-to-peer business models, the rise of commercial and research commons, and an increasing emphasis on access to goods and services in networked markets.

One of the fundamental, underlying challenges in this pursuit is the reality that borderless networks created by the internet, and the innovation and social change they drive, exist in tension with the structure of copyright law, which like other branches of IP is territorial

38 United States International Trade Commission, supra note 10 at 13–14.

39 See World Economic Forum, *supra* note 8 at 39.

40 "Worldwide Retail Ecommerce Sales Will Reach $1.915 Trillion This Year," *EMarketer* (22 August 2016), available at https://www.emarketer.com/Article/Worldwide-Retail-Ecommerce-Sales-Will-Reach-1915-Trillion-This-Year/1014369.

41 See Green Paper, *supra* note 9 at 1–5.

42 See e.g. Baker, Jennifer, *European Commission Eyes An End to Data Localization in EU*, IAPP (2017), https://iapp.org/news/a/european-commission-eyes-an-end-to-data-localization-in-eu/ (addressing, among other measures, recent criticism of a German law designed to retain personal data only in Germany).

43 See World Economic Forum, *supra* note 8 at 39.

44 See Howard, Philip N. and Hussain, Muzammil M., "The Role of Digital Media," *J. Democracy* (2011), 22:35,35–36 (arguing in the context of the "Arab Spring" that "[d]igital media helped to turn individualised, localised, and community-specific dissent into structured movements with a collective consciousness about both shared grievances and opportunities for action").

45 See World Economic Forum, *supra* note 8 at xii.

46 See Green Paper, *supra* note 9 at 7–8; see also *Facts and Research*, Recording Industry Association of America (RIAA), https://www.riaa.com/reports/the-true-cost-of-sound-recording-piracy-to-the-u-s-economy/ (estimating that the US economy loses US$ 12.5 billion per year as a consequence of music theft). According to the USITC's findings, 75 percent of large firms and 50 percent of small to medium-sized firms dealing in digital communications believed that IP infringement presented an obstacle to digital trade. United States International Trade Commission, *supra* note 10 at 92. On a scaled rating, approximately 34 percent of large sector content firms, 29 percent of large retail firms, and 27 percent of small to medium-sized digital communications sector firms stated their belief that infringement presented a "substantial or very substantial" obstacle. *Id.*

in nature and effect[47] and is fundamentally organized around conditions in which societal benefits are available primarily to those who can afford them. International copyright law has traditionally responded to globalisation by promoting the harmonisation of standards as the dominant model for economic progress.[48] Though the logic of harmonised rules has been a subject of ongoing challenge,[49] harmonisation processes have prevailed, pervading not only international treaty-making bodies, but also bilateral and multilateral trade negotiation platforms,[50] unfolding in formal instruments and even through ubiquitous and often invisible webs of technical assistance to government agencies, judges, and IP teachers.

Ironically, the Fourth Industrial Revolution's well-recognised pressures on regulatory structures were borne out of parts of the global economy least regulated by the harmonised copyright framework, such as the technology industry. This fact suggests that any investigation into reform of the international copyright regime should consider disharmonisation as a potential avenue for accomplishing what should be essential priorities for increased public welfare: creativity, engagement, and access. The harmonised system is characterised in part by an intense focus on the human author; this should be expanded to include an unequivocal commitment to consumers of knowledge goods. To do so requires taking proposals for progressive disharmonisation seriously as a deliberate design feature of the global copyright regime.

Opportunities from the constraints of the WIPO internet treaties

One avenue to consider disharmonisation emerges from the ongoing political pressure for new and stronger rules at the juncture between copyright and digital trade. These pressures have renewed a longstanding debate about how domestic and international copyright regimes should adapt, if at all, to the changing norms of an internet-centric society.[51] While current discussions on this topic are not new as such, neither were they entirely presaged by the conditions that led to the negotiation of the WIPO Internet Treaties of the 1990s: the WIPO Copyright Treaty (WCT)[52] and the WIPO Performances and Phonograms Treaty (WPPT).[53]

Recognising the "profound" impact of information and communication technologies on the creation, use, and production of creative works, the WCT and WPPT sought to establish an international legal framework that responded to the "questions raised by new economic, social, cultural, and technological developments."[54] Looking back now, negotiators clearly underestimated the disruptive force of digital technologies on the social and economic order, and so drafted a copyright law for the digital age largely by mapping traditional copyright norms

47 See Berne Convention, 9 September 1886, S. Treaty Doc. 99-27, 828 U.N.T.S. 221; *Subafilms, Ltd. v. MGM-Pathe Communications Co.*, 24 F.3d 1088, 1095–96 (9th Cir. 1994); Directorate General for Internal Policies, *Copyright Territoriality in the European Union 5-7*, PE 419.621 (February 2010), available at http://www.europarl.europa.eu/RegData/etudes/note/join/2010/419621/IPOL-JURI_NT(2010)419621_EN.pdf.

48 *Cf.* Okediji, Ruth, "Reframing International Copyright L&Es as Development Policy," in *Copyright Law in an Age of Limitation and Exceptions* (2017), 429–95 (questioning the underlying assumption that copyright harmonisation efforts in the post-TRIPS era have been designed for the equal benefit of developing and least developed nations).

49 See Reichman, Jerome H. and Cooper Dreyfus, Rochelle, "Harmonization Without Consensus: Critical Reflections on Drafting a Substantive Patent Law Treaty," *Duke L. J.* (2007), 57:85,86.

50 See Scotchmer, Suzanne, "The Political Economy of Intellectual Property Treaties," *J. L. Econ. Org.* (2004), 20:415,419 (critiquing consistent harmonisation trends reflected in TRIPS and the North American Free Trade Agreement).

51 See e.g. *White Paper on Remixes, First Sale, and Statutory Damages*, Department of Commerce Internet Policy Task Force, (January 2016), 1–4, available at https://www.uspto.gov/sites/default/files/documents/copyrightwhitepaper.pdf [hereinafter White Paper]; see also Ruth Okediji, "Givers, Takers, and Other Kinds of Users: A Fair Use Doctrine for Cyberspace," *Fla. L. Rev.* (2001), 53:107.

52 See WIPO Copyright Treaty art. 1, 20 December 1996, S. Treaty Doc. No. 105–17 (1997), 36 I.L.M. 65.

53 See WIPO Performances and Phonograms Treaty art. 12, 20 December 1996, S. Treaty Doc. No. 105–17, 36 I.L.M 76.

54 See WPPT, *supra* note 53, pmbl.; WCT, *supra* note 52, pmbl.

onto the digital landscape.[55] For example, the WCT[56] expanded the scope of rights conferred upon authors to include: (1) the right of distribution; (2) the right of rental; and (3) the "making available" right, or a broader right of communication to the public.[57] It also broadened the scope of copyrightable subject matter to include: (1) computer programs; and (2) compilations of data or databases.[58] The treaty further responded to industry concerns about the digital environment, and the potential for mass infringement, by obligating Contracting Parties to provide legal remedies against: (1) the circumvention of technological measures designed to protect the rights of authors; and (2) the removal or altering of copyright management information.[59] However, the Agreed Statements accompanying the WCT reiterate that the three-step test enshrined in the Berne Convention remains applicable to any domestic exception and limitation that Contracting Parties find appropriate to apply to the digital environment.[60]

Scholars largely agree that some of the domestic statutes created in the wake of the WCT, such as the Digital Millennium Copyright Act of 1988 (DMCA)[61] in the US and the Information Society and Software Directives in the European Union,[62] represented substantial victories for strong copyright lobbies.[63] But, as I have argued elsewhere, the WIPO Internet Treaties have proved far less salient in current policy and legal considerations about how knowledge creation might best be encouraged and sustained in the global online context.[64] Nonetheless, since negotiation of the WCT and WPPT in the mid-1990s,[65] multilateral and bilateral trade agreements have continued down the path of forging policies centred on enabling greater rent extraction from copyrighted works, rather than stimulating creativity, equitably disseminating knowledge goods, and promoting user participation in the creative process.[66]

Opportunities from the limits of multilateralism

Furthermore, since the conclusion of TRIPS and the entry into force of the Internet Treaties, legislators and policymakers have fomented a flurry of diplomatic efforts in an attempt to solve continually changing technological issues, albeit in a slightly different context. The Anti-Counterfeiting Trade Agreement (ACTA),[67]

55 See Okediji, *supra* note 27 at 2388.

56 For the purpose of this article, the WCT is the more relevant treaty, and as such the subsequent discussion focuses on that agreement rather than the WPPT.

57 WCT, *supra* note 52 at arts. 6–8.

58 *Id.* at arts. 4–5.

59 *Id.* at arts. 11–12.

60 *Id.* at art. 10.

61 Act of 28 October 1998, Pub. L. 105-304, § 101, 112 Stat. 2860.

62 Directive 2001/29 of the European Parliament and of the Council of 22 May 2001 on the Harmonisation of Certain Aspects of Copyright and Related Rights in the Information Society, (O.J. 2001 L 167 p.12); Article 4 of Directive 2009/24/EC, of the European Parliament and the Council of 23 April 2009 on the Legal Protection of Computer Programs (O.J. 2009 L 111, p.18).

63 Susan A. Mort, "The WTO, WIPO and the Internet: Confounding the Borders of Copyright and Neighboring Rights," *Fordham Intell. Prop. Media Ent. L. J.* (1997), 8:173, 203 ("The ability of private corporate interests to shape significantly the outcome of an intellectual property treaty indicates the importance of both copyright and the Internet to the future of world trade").

64 See Okediji, *supra* note 27 at 2380.

65 *WIPO Internet Treaties*, WIPO, available at http://www.wipo.int/copyright/en/activities/internet_treaties.html ("WIPO is deeply involved in the ongoing international debate to shape new standards for copyright protection in cyberspace. The organization administers the WIPO Copyright Treaty and the WIPO Performances and Phonogram Treaty (known together as the 'Internet Treaties'), which set down international norms aimed at preventing unauthorised access to and use of creative works on the Internet or other digital networks").

66 See e.g. United States–Chile Free Trade Agreement, 1 January 2004, Office of the United States Trade Representative, available at https://ustr.gov/trade-agreements/free-trade-agreements/chile-fta.

67 Anti-Counterfeiting Trade Agreement, at E-1, 1 October 2011, 50 I.L.M. 239, 243 (2011) [hereinafter ACTA], available at http://www.mofa.go.jp/policy/economy/i_property/pdfs/acta1105_en.pdf.

the Trans-Pacific Partnership (TPP),[68] and the North American Free Trade Agreement (NAFTA) renegotiation[69] represent quintessential trends in the plurilateral and multilateral negotiating platform for modern copyright norms within the global trade context: highly secretive, protectionist free-trade agreements, designed to "combat [the] proliferation [of counterfeit and pirated goods, as well as of services that distribute infringing material] through enhanced international cooperation and more effective international enforcement"[70] (in the case of ACTA), and "[establish] a comprehensive regional agreement that promotes economic integration to liberalise trade and investment" (in the case of TPP).[71] As is well known, the shroud of secrecy enveloping both ACTA and TPP generated a significant political backlash.[72] Many observers have also criticised the manner in which the agreements attempt to weave the most controversial, protectionist components of US copyright law and stringent criminal copyright provisions into the fabric of international norms,[73] while simultaneously making critical user-oriented exceptions, such as fair use, optional.[74] Though neither ACTA nor the TPP currently is a viable instrument of broad multilateral consensus,[75] the negotiation of the IP provisions, in particular, underscore the importance governments continue to place on IP policy within trade regulation. Both agreements also represent useful examples of the types of standards and reform efforts upon which negotiating members have historically achieved agreement.

Opportunities from pressures of the "user economy"

With the heated debate about "balanced" copyright law for the digital age continuing in the background, innovators continue to press through technological boundaries. Rapid advances in AI call into question axiomatic principles of copyright law, including the conception of authorship, the role of human distinctiveness in assessing originality, and the importance of secondary markets for digital goods. Likewise, the increasing role that internet users play in knowledge dissemination and market creation has left many observers critical of whether the controversial three-step test[76]—and the domestic limitations and exceptions enacted in its wake—carve out

68 Trans-Pacific Partnership, Office of the United States Trade Representative, available at https://ustr.gov/trade-agreements/free-trade-agreements/trans-pacific-partnership/tpp-full-text.

69 See generally *NAFTA 2.0 and Intellectual Property Rights: Insights on Developing Canada's Knowledge Economy*, Centre for International Governance Innovation (2017), available at https://www.cigionline.org/sites/default/files/documents/NAFTA%20Special%20Report%20WEB.pdf.

70 See ACTA, *supra* note 67.

71 See TPP, *supra* note 68.

72 See e.g. Sutton, Maira, *TPP Under Fire in the US As Other Signatories Advance Towards Ratification*, Electronic Frontier Foundation (2016), https://www.eff.org/deeplinks/2016/03/tpp-under-fire-us-other-signatories-advance-towards-ratification.

73 See Band, Jonathan, "The SOPA-TPP Nexus," *Am. U. Int. L. Rev.* (2012), 28:31,47-8.

74 The agreement simply states that exceptions and limitations to copyright must past the infamous three-step test. See TPP, *supra* note 68 at art. 18.65.

75 Chandran, Nyshka, "Who Needs The USA? These 11 Countries Are Trying To Cement A Free-Trade Deal Without It," CNBC (18 July 2017) ("ACTA was negotiated from 2007 to 2010 by the US, the EU, Switzerland, Canada, Australia, New Zealand, Mexico, Singapore, Morocco, Japan, and South Korea. Eight out of the eleven negotiating countries signed the agreement in October 2011. The number of countries that were part of these negotiations is limited, but the agreement's provisions would have global consequences for digital freedoms. Once six nations ratify the agreement, its implementation will take effect. As of October 2012, it has only been ratified by Japan. Though the US withdrew from the TPP, the remaining signatories are continuing to move forward with the deal").

76 The "three-step test," which was originally introduced in the 1967 revision of the Berne Convention and later enshrined in the TRIPS Agreement, is a clause attempting standardise copyright limitations and exceptions across signatories. The text of the clause in the TRIPS Agreement is as follows: "Members shall confine limitations and exceptions to exclusive rights to *certain special cases which do not conflict with a normal exploitation of the work and do not unreasonably prejudice the legitimate interests of the rights holder*" (emphasis added). See TRIPS Agreement, *supra* note 34.

sufficient opportunities to engage with content, creatively or otherwise, in a way that the twenty-first-century citizen has come to expect from their online experience. And although the underlying architecture supporting this innovation—computer software—may appear to be covered by harmonious protections worldwide,[77] standards for software copyright are, in truth, disjointed and uncertain.

Following the 2014 *Oracle v. Google*[78] decision in the United States, for example, copyright protection afforded to computer program interfaces threatens to undermine conventions that have long fostered software development.[79] In determining whether or how digital innovations and the cultural norms that arise from them should affect copyright doctrine and the scope of its protection, policymakers face a landscape of legal rules designed for the physical world. Furthermore, there are new and lingering questions about the efficacy of the copyright monopoly for social progress in a world where humans are becoming further removed from the creative process and content production. In many cases, the realities of digital commerce may demand less copyright protection—in instances where, for example, that protection might endanger interoperability efforts in software development or hamper free expression on social media channels. In other areas, a more significant presence of copyright law may be salutary—for instance, in order to secure the expressive benefits of fair use that may be overridden by internet platforms' proprietary content monitoring systems.[80] In still other situations, certain copyright provisions, such as those barring the circumvention of technological protection measures per se, might most appropriately be scaled back completely.[81]

2.2 The Re-emergence of National Copyright for Global Markets

The consequences of failing to address these and other gaps at the juncture of copyright, the internet, and digital technologies—particularly with respect to trade in knowledge goods—present significant challenges to national policymakers. As underscored by a leading study following the United States Second Circuit Court of Appeals' decision in *Cartoon Network v. Cablevision*,[82] in which the court sanctioned the now ubiquitous digital video recorder (DVR) system, investment in copyright industries is intimately connected with legal clarity.[83] Confirmed by a 2016 report, global investors view an industry's legal environment as having the most negative impact on their investing activities, with 75 percent of investors stating they are uncomfortable investing in businesses governed by ambiguous regulatory frameworks.[84] At the same time, failing to regulate with market dynamism in mind could cause unnecessary loss to creative industries and undermine the underlying object of IP laws to "promote technological innovation and ... the transfer and dissemination of technology, to the mutual advantage of producers and

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77 See *id.*, art. 10, 15 ("Computer programs, whether in source or object code, shall be protected as literary works under the Berne Convention (1971)").

78 *Oracle v. Google*, 750 F.3d 1339 (Fed. Cir. 2014); *Oracle v. Google,* 750 F.3d 1381 (Fed. Cir. 2018).

79 See generally Brief for Google, Inc. as Amici Curiae Supporting Petitioners, Google, Inc. v. Oracle America, Inc., 135 S.Ct. 2887 (2015).

80 See *infra.* Part III.C (discussing YouTube's Content ID system).

81 *Id.* (discussing conflicts between anti-circumvention provisions and fair use).

82 *Cartoon Network LP v. CSC Holdings, Inc.*, 536 F.3d 121 (2d Cir. 2008).

83 Lerner, Josh, *The Impact of Copyright Policy Changes on Venture Capital Investment in Cloud Computing Companies* (2011), 1, available at http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.732.839&rep=rep1&type=pdf ("Our results suggest that the *Cablevision* decision led to additional incremental investment in US cloud computing firms that ranged from $728 million to approximately $1.3 billion over the two-and-a-half years after the decision. When paired with the findings of the enhanced effects of VC investment relative to corporate investment, this may be the equivalent of $2 to $5 billion in traditional R&D investment").

84 Le Merle, Matthew C. et al., *The Impact of Internet Regulation on Investment* (2016).

users..."[85] Just as global markets for VHS tapes, DVDs, and related hardware benefited immensely from the markets created by the legalisation of Sony's Betamax video cassette recorder (VCR),[86] national policymakers must remain focused on designing national copyright laws that ensure technologies are harnessed to optimise access to works and data flows across borders. With about 75 percent of trades on the New York Stock Exchange and Nasdaq being performed by algorithmic AI,[87] the future of not only technological innovation but also trade at large hangs in the normative balance established first nationally, and then where possible, in new international copyright norms. Indeed, the recent legal proceedings in *United States v. Microsoft*[88]—a case involving a warrant for data that could have resulted in the United States Supreme Court construing a federal statute in conflict with EU law if not for Congressional action—illustrate the way that national judicial decisions could dramatically alter modalities of digital commerce and cloud computing globally, before any possible treaty norms have emerged.[89]

What are the most salient concerns regarding copyright law in this complex regulatory and political landscape? Will copyright survive and, if so, in what form? The following section focuses on previewing implications of digital trade for (1) copyrightable subject matter, and specifically, the threshold questions of authorship and originality in an era where machines play an increasingly important role in the "creative" domain; and (2) the potential for limitations and exceptions to copyright to hinder or foster social and economic development in the digital age. The section will present a doctrinal overview of these policies, a comparative perspective on their implementation across the globe, and a critique of the tension that each doctrine has engendered in the context of copyright and digital trading channels. It will also address how developments in the rise of big data, and new collaborative forms of production challenge copyright's role as the key policy framework for the digital environment, further strengthening the case for disharmonisation.

85 See TRIPS Agreement, *supra* note 34 at art. 7.

86 See S*ony Corp. of Am. v. Universal City Studios, Inc.*, 464 US 417 (1984) (concerning whether Sony's Betamax VCR contributorily infringed on television studios' and filmmakers' copyrights); Lee, Edward, "Technological Fair Use," *S. Cal. L. Rev.* (2010), 83:797,799 ("The sale of VCRs ... facilitated the growth of a vast new and unforeseen market for the movie studios in the rental and sale of videos for home viewing, which, perhaps ironically, became 'the largest source of revenue for the [US] movie industry,' even surpassing box office sales" [footnotes omitted]).

87 Fleury, Michelle, "How Artificial Intelligence Is Transforming the Financial Industry," BBC (16 September 2015), www.bbc.com/news/business-34264380.

88 In re Warrant to Search a Certain E-Mail Account Controlled and Maintained by Microsoft Corporation, 829 F.3d 197 (2d Cir. 2016), *cert. granted sub nom.* United States v. Microsoft Corp., 138 S.Ct. 356 (2017).

89 See generally Brief of Bsa | the Software Alliance, Center for Democracy and Technology, Chamber of Commerce of the United States, the National Association of Manufacturers, and Act | the App Association as Amici Curiae Supporting Appellant, *Microsoft v. United States,* 829 F.3d 197 (2d Cir. 2016) (No. 14-2985), 2014 WL 7213177; see also *United States v. Microsoft*, No. 17-2, 584 US __ (2018)

3. RE-EVALUATING THE THRESHOLD QUESTION: COPYRIGHT FOR "CREATIVE" MACHINES

Many of copyright law's bedrock principles are based on assumptions about human behaviour, judgement, and activity. For example, the doctrine of originality, copyright's first line of defence in all countries, is a surprisingly low standard—particularly in the United States[90]—precisely because it is tied intimately to notions of human authorial capacity.[91] Creative expression that is not copied, functional, or factual almost always satisfies copyright's eligibility requirements.[92] In a similar manner, copyright doctrines that police threshold questions of eligibility for protection reflect the untested assumption that expression stems from a uniquely human capacity to create.[93] Though this idea has been questioned since the 1970s with the emergence of early computing capability,[94] it has recently re-emerged on the copyright frontier as advanced technology has leaped so far forward as to meld the traditionally accepted distinction between humans' and machines' creative capacities.[95] As trade driven by AI expands—and new markets develop from newly found computing capacities—copyright doctrine will be one of the many legal frameworks pressured to adapt to changing consumption and creation patterns.[96] Indeed, "originality," already a difficult concept to harmonise, and assumptions about human authorship will be two of the most significant copyright rules to be tested by advances in AI.

3.1 An International Framework for Works Created by Artificial Intelligence

Despite its pivotal doctrinal role in the legal architecture of copyright law, the international framework takes an equivocal approach to originality. The Berne Convention does not define the term, and, instead, leaves open the question of what threshold level of originality

90 See e.g. *Feist Publications, Inc. v. Rural Telephone Service Co.*, 499 US 340, 346-47 (1991) ("Original, as the term is used in copyright, means only that the work was independently created by the author (as opposed to copied from other works), and that it possesses at least some minimal degree of creativity. To be sure, the requisite level of creativity is extremely low; even a slight amount will suffice. The vast majority of works make the grade quite easily, as they possess some creative spark, 'no matter how crude, humble or obvious' it might be" [internal citations omitted]).

91 See e.g. *Bleistein v. Donaldson Lithographing Co.*, 188 US 239, 250 (1903) ("[The work] is the personal reaction of an individual upon nature. Personality always contains something unique. It expresses its singularity even in handwriting, and a very modest grade of art has in it something irreducible, which is one man's alone. That something he may copyright unless there is a restriction in the words of the act").

92 *L. Batlin & Son, Inc. v. Snyder*, 536 F.2d 486, 490 (2d Cir. 1976) ("'[W]hile a copy of something in the public domain will not, if it be merely a copy, support a copyright, a distinguishable variation will"' (quoting *Gerlach-Barklow Co. v. Morris & Bendien, Inc.*, 23 F.2d 159, 161 (2d Cir. 1927))).

93 *Id.* (addressing the issue of whether a photograph, by virtue of the mechanical involvement of a machine intermediary (the camera) qualified for copyright protection).

94 See *National Communication on New Technological Uses of Copyrighted Works, Final Report* (1978), 4 [hereinafter "CONTU REPORT"], available at http://eric.ed.gov/PDFS/ED160122.pdf.

95 Araya and Lamb, supra note 7; Press Association, "Computer Simulating 13-Year-Old Boy Becomes First to Pass Turing Test," *Guardian* (9 June 2014), https://www.theguardian.com/technology/2014/ jun/08/super-computer-simulates-13-year-old-boy-passes-turing-test (the Turing Test, "devised in 1950 by computer science pioneer and second world war codebreaker Alan Turing, who said that if a machine was indistinguishable from a human, then it was 'thinking,'" is a much cited benchmark for AI capacity, which has recently been broken by Eugene i, "a computer programme developed to simulate a 13-year-old boy, managed to convince 33% of the judges [from the Royal Society in central London] that it was human").

96 See generally Bridy, Annemarie, "Coding Creativity: Copyright and the Artificially Intelligent Author," *Stan. Tech. L. Rev.* (2012), 5; Bradshaw, Simon, et al., "The Intellectual Property Implications of Low-Cost 3D Printing," *Scripted* (2010), 7:5,20-26, available at http://opus.bath.ac.uk/18661/.

is required for copyright.[97] The WCT likewise fails to define originality, though the Agreed Statements provide that "the expressions 'copies' and 'original and copies,' being subject to the right of distribution and the right of rental under the said Articles, refer exclusively to fixed copies that can be put into circulation as tangible objects."[98] Rather than define the threshold of originality necessary to copyright, however, this language was used to ensure that short-term reproductions, such as those automatically generated by computers in random access memory (RAM) drives, were not encompassed by the rights of distribution and rental.[99]

Left to their own legislative and judicial devices, nations around the world have converged on low threshold originality standards for copyright protection.[100] In the US, the contours of copyright eligibility are made explicit by Section 102 of the Copyright Act, which states that "[c]opyright protection subsists, in accordance with this title, in original works of authorship fixed in any tangible medium of expression... "[101] Courts at every level of the US judiciary have spilled much ink expounding on the nature of "original" expression that qualifies a work for copyright protection under the Constitution. In *Feist Publications, Inc. v. Rural Telephone Service Co.*,[102] the Supreme Court rejected once and for all the idea that mere work, or "sweat of the brow," is enough to sustain copyright protection.[103] The Court acknowledged that while the "sine qua non of copyright is originality," the originality under the copyright statute "means only that the work was independently created by the author (as opposed to copied from other works) and that it possesses at least some minimal degree of creativity."[104]

For its part, the European copyright statute, the Information Society Directive 2001/09/EC (InfoSoc Directive), does not codify a specific originality prescription.[105] The European Software Directive 2009/24/EC, however, provides that computer programs are eligible for protection in the European Community "if it is original in the sense that it is the author's own intellectual creation."[106] Recently, in *Infopaq International A/S v. Danske Dagblades Forening*,[107] the European Court of Justice

97 Article 2(1) gives some clues. It provides that "the expression 'literary and artistic works' shall include every production in the literary, scientific and artistic domain, whatever may be the mode or form of its expression." Berne Convention art. 2(1), supra note 47; See Chow, Daniel C.K. and Lee, Edward, *International Intellectual Property: Problems, Cases, and Materials* (2006), 130 ("Originality is often thought to be the touchstone of copyright requirements, although curiously it is not expressly mentioned in either TRIPs or the Berne Convention."); *cf.* Gervais, Daniel J., "The Compatibility of the "Skill and Labour" Originality Standard with the Berne Convention and the TRIPs Agreement," *Eur. Intell. Prop. Rev.* (2004), 26:75,80 ("[T]he text and drafting history of the Berne Convention unequivocally demonstrate that the proper test of originality is that the work must embody an author's creative input").

98 See WCT, *supra* note 52 at art. 6 n.5 (Agreed Statement concerning arts. 6–7).

99 See Okediji, *supra* note 27 at 2395.

100 Though a detailed comparative analysis of the originality standards around the globe is beyond the purview of this article, the following paragraphs will present an overview of key features of international originality standards to underscore the points that: (1) low originality standards pervade global copyright policy; and (2) originality is a concept tied to uniquely human attributes of the creative mind.

101 17 USC. § 102 (2012).

102 499 US 340 (1991).

103 *Id.* at 352-60.

104 *Id.* at 354.

105 Council Directive 2001/29/EC of 22 May 2001 on the Harmonisation of Certain Aspects of Copyright and Related Rights in the Information Society, 2001 O.J. (L 167) 10, available at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32001L0029:EN:HTML/.

106 Council Directive 2009/24/EC of 23 April 2009 on the Legal Protection of Computer Programs, art. 1(3), 2009 O.J. (L 111) 16 (EU), available at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:111:0016:0022:EN:PDF.

107 C-5/08, [2009] ECDR 16.

clarified that originality under EU copyright law requires some level of expression of "intellectual creation," leaving the threshold for this legal test to interpretation by national courts.[108] With these parameters in place, national legislatures within the EU have developed various tests for the threshold originality question.[109] For example, Article 1(1) of the Austrian Copyright Act provides that "[w]orks within the meaning of this Law shall be original intellectual productions in the fields of literature, music, art, and cinematography."[110] France and other civil law jurisdictions that embody a strong *droit d'auteur* (author's rights) tradition mandate a slightly higher standard, requiring both an imprint of the author's personality and some measure of creative novelty.[111] On the other hand, common law countries(such as the UK), have articulated an especially low originality standard that merely requires the "skill, judgement and/or labour" of the author.[112] Though modelled off the UK , the Canadian Supreme Court in *CCH Canadian v. Law Society of Upper Canada*[113] recently created a new, middle-of-the-road originality standard. The Court concluded that an original work under the Canadian Copyright Act "is one that originates from an author and is not copied from another work ... [and] must be the product of an author's exercise of skill and judgment."[114]

The advancement of digital technologies, particularly in the realm of software and databases, has called into question the soundness of this low floor set by originality standards across the globe.[115] In the face of powerful industry lobbies, the WCT mandated that both computer programs and compilations of data be protected by copyright, an end achieved legislatively in the EU (through passage of the Software Directive and the Database Directive, which affords both copyright and a sui generis form of protection for substantial investments in obtaining, verifying, and presenting of data in a database)[116] and in the US (through amendment of the Copyright Act).[117] Nonetheless, building from early critiques of the potential consequences of copyright protection of software, observers continue to question whether copyright incentives are necessary for software production, particularly in an age where software development costs can be recouped from the hardware in which it is embedded or customised for internal usage patterns.[118]

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108 *Id.*

109 See Margoni, Thomas, *The Harmonisation of EU Copyright Law: The Originality Standard* (2016), available at https://ssrn.com/abstract=2802327 or http://dx.doi.org/10.2139/ssrn.2802327.

110 Austrian Copyright Act, Article 1(1), available at http://www.wipo.int/wipolex/en/text.jsp?file_id=124839.

111 Rahmatian, Andreas, "Originality in UK Copyright Law: The Old 'Skill and Labour' Doctrine Under Pressure," *Int. Rev. Intell. Prop. Comp. L.* (2013), 44:4,16.

112 *Ladbroke (Football), Ltd. v. William Hill (Football), Ltd.*, [1964] 1 All E.R. 465, 469 (H.L.); see also *Univ. of London Press, Ltd. v. Univ. Tutorial Press, Ltd.*, [1916] 2 Ch. 601, 608 ("The word original does not in this connection mean that the work must be the expression of original or inventive thought. Copyright Acts are not concerned with the originality of ideas, but with the expression of thought... The Act [requires] that the work not be copied from another work—that it should originate from the author").

113 *CCH Canadian, Ltd. v. Law Society of Upper Canada*, [2004] 1 S.C.R. 339.

114 *Id.* at 25.

115 See e.g. Breyer, Stephen, "The Uneasy Case for Copyright: A Study of Copyright in Books, Photocopies, and Computer Programs," *Harv. L. Rev.* (1970), 84:281.

116 See Software Directive, *supra* note 104; Council Directive 96/9/EC of 11 March 1996 on the Legal Protection of Databases 1996 O.J. (L77) 20 (EU), available at http://eur-lex.europa.eu/lexUriServ/LexUriServ.do?uri=CELEX:31996L0009:EN:HTML.

117 See Act of Dec. 12, 1980, Pub. L. No. 96-517, 94 Stat. 3015 (codified at 17 USC. §§ 101, 117).

118 See generally Samuelson, Pamela, "The Uneasy Case for Software Copyrights Revisited," Geo. Wash. L. Rev. (2011), 79:1746,1777; Menell, Peter, "Rise of the API Copyright Dead?: An Updated Epitaph for Copyright Protection of Network and Functional Features of Computer Software," *Harv. J. L. Tech.* (2018), 31:305.

AI pushes the originality debate further yet again by questioning the utility or necessity of copyright protection for works created by—or with significant input from—intelligent, precise, and programmable machinery. As observed with Raymond Kurzweil's Cybernetic Poet, which can be used as a "poet's assistant" or a poetry generator in its own right,[119] or The Next Rembrandt (a painting produced by a 3D printer whose instructions were made by a computer that learned the artistic, algorithmic patterns of the Dutch master Rembrandt),[120] machines are taking a more active, if not entirely independent role in content creation and production. With robotics firms set to spend nearly US$ 135 billion in 2019 (nearly double expenditures in 2015),[121] and 3D printing "promis[ing] to democratize creation,"[122] copyright law must again contend with questions of whether, and to what extent, current copyright norms can fit the moulds cast by old technologies, while at the same time preserving and promoting important channels of trade, innovation, and information dissemination.

3.2 Technological Overview

Before surveying two copyright issues implicated by AI (originality and authorship), it is useful to distil the basic concepts behind these technologies. In the field of AI, scientists are dedicated to exploring the advancement of "machine learning," defined as "a scientific field addressing the question '[h]ow can we build computer systems that automatically improve with experience, and what are the fundamental laws that govern all learning processes?'"[123] Even in its infancy, advancements in the field have provided preliminary models of self-driving cars, investment decision makers, hotel staff, and translators.[124] Pushing this boundary further, the most advanced AI systems are being built with "neural network" software that mimics cognition that occurs in the neocortex of the human brain, allowing machines to classify, recognise, assess, and forecast data in unprecedented ways.[125] Underscoring the advancement and potential of AI software, technology companies are now entrenched in a robotics race to the top, showing off their AI poker players,[126] Go champions,[127] and Jeopardy winners.[128] Though not all scientists encourage an unrestrained approach to AI research and innovation,[129] the field continues to attract significant investment and to create new markets for consumer goods.[130]

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119 US Patent No. 6,647,395 (filed 1 November 2000).

120 Baraniuk, Chris, "Computer Paints 'New Rembrandt' After Old Works Analysis," BBC (6 April 2016), http://www.bbc.com/news/technology-35977315.

121 Vanian, Jonathan, "The Multi-Billion Dollar Robotics Market Is About to Boom," *Fortune* (24 February 2016), http://fortune.com/2016/02/24/robotics-market-multi-billion-boom/.

122 See Hanna, Peter, "The Next Napster? Copyright Questions as 3D Printing Comes of Age," *Ars Technica* (6 April 2011), http://arstechnica.com/tech-policy/2011/04/the-next-napster-copyright-questions-as-3d-printing-comes-of-age/.

123 Mitchell, Tom M., *The Discipline of Machine Learning* (2006), 1, available at http://www.cs.cmu.edu/~tom/pubs/MachineLearning.pdf.

124 See Denicola, Robert C., "Ex Machina: Copyright Protection for Computer-Generated Works," *Rutgers U. L. Rev.* (2016), 69:251,253.

125 See e.g. Kar, Abhishek, *Stock Prediction Using Artificial Neural Networks*, available at https://pdfs.semanticscholar.org/4e59/7dfd9907e328c355a1c965fa6df51b07a932.pdf (concluding that neural AI networks may be an effective tool for stock market prediction).

126 Wakefield, Jane, "AI Program Beats Humans in Poker Game," BBC (31 January 2017), www.bbc.com/news/technology-38812530.

127 McAfee, Andrew and Brynjolfsson, Erik, "Where Computers Defeat Humans, and Where They Can't," New York Times (16 March 2016), http://www.nytimes.com/2016/03/16/opinion/where-computers-defeat-humans-and-where-they-cant.html.

128 Markoff, John, "Computer Wins on 'Jeopardy!': Trivial, It's Not," *New York Times* (16 February 2011), http://www.nytimes.com/2011/02/17/science/17jeopardy-watson.html.

129 Ford, Paul, "Our Fear of Artificial Intelligence," *MIT Technology Review* (11 February 2015), https://www.technologyreview.com/s/534871/our-fear-of-artificial-intelligence/.

130 Vanian, *supra* note 122.

Policymakers must approach copyright issues implicated by AI with an appreciation of the potentially vast impact that this technology may have on consumers' behaviour and on the global market for AI products and services. The Artificially Intelligent "Author"

Though AI raises numerous legal issues for academia and policymaking bodies to explore,[131] two of the most salient copyright obstacles are the threshold issues of authorship and copyright eligibility. With respect to authorship, scholarly debate is mounting about whether intelligent, productive machines can (and should) be considered the legal "authors" of their respective works under copyright law.[132] This debate continues to grow as the computer power of sophisticated, learning machinery burgeons; according to AI experts, the technology has a 50 percent chance of reaching human-level intelligence by 2040 and a 90 percent probability by 2075.[133] The more sophisticated the technology becomes, and the less human intervention is involved in the generation of artistic works, the more difficult the authorship problem becomes.

On the one hand, AI machines can generate difficult-to-predict output that resembles human handiwork and may require minimal human intervention to do so. On the other hand, it is software code, which ultimately stems from the creative and technical work of computer programmers that creates and empowers the AI machine from which these works originate. Furthermore, AI often creates works in tandem with human users, who may provide some degree of instruction to guide the software. Thus, the tripartite dynamics of creation in the AI printing world—among programmers, users, and machinery—form a complex web of technological interactions for which copyright has no definitive precedent.

Though the authorship debate engenders controversial notions about the romantic and philosophical source of creativity—one that was similarly fervent in the 1880s with respect to photography[134]—copyright law has been, and continues to be, hostile to non-human authors.[135] As policymakers begin to sift through these doctrinal questions, one must start by acknowledging the value

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131 *Cf.* CONTU Report, *supra* note 95 at 44 ("[T]he Commission believes that there is no reasonable basis for considering that a computer in any way contributes authorship to a work produced through its use. The computer, like a camera or a typewriter, is an inert instrument, capable of functioning only when activated either directly or indirectly by a human. When so activated it is capable of doing only what it is directed to do in the way it is directed to perform") with *Intellectual Property Rights in the Age of Electronics and Information,* United States Office of Technology Assessment (1986) (recognizing the potential for computer programs to engage in "creative activities ... [that] fuse with machine intelligence").

132 See Denicola, *supra* note 125; Bridy, *supra* note 97; see also Samuelson, Pamela, "Allocating Ownership Rights in Computer-Generated Works," *U. Pitt. L. Rev.* (1986), 47:1185 (exploring the possibilities and arguments surrounding the question of who should own authorship rights in output generated by computers, and ultimately arguing that, in general, allocating rights in computer-generated output to the user of computer programs is the best option under traditional doctrine and the policies that underlie copyright law).

133 See Denicola, *supra* note 125 at 255–6 ("A study from Oxford University suggests that 47% of total United States employment could be at risk to smart software or robots in the next two decades, and 45% of the 800 corporate executives surveyed said that they expected an artificial intelligence machine to be on their board of directors by 2025. In a survey of managing partners at 320 US law firms, 35% said they could envision first-year associates being replaced by artificial intelligence in the next five to ten years").

134 See *Burrow-Giles Lithographic Co. v. Sarony,* 111 US 53, 58–59 (1884) ("But it is said that ... the photograph is the mere mechanical reproduction of the physical features or outlines of some object ... and involves no originality of thought or any novelty in the intellectual operation connected with its visible reproduction in shape of a picture"); see also Hughes, Justin, "The Photographer's Copyright: Photograph as Art, Photograph as Database," *Harv. J. L. Tech.* (2012), 25:339,370–71.

135 *Cf.* Goldstein, Paul, *Goldstein on Copyright*, 3rd edn (2014), § 2.2.2 ("Cases may arise, nonetheless, that squarely present the question whether copyright can attach to a computer-generated product for which the only human intervention is the hand that turned on the machine. Although the question is close, it would appear that, at least without an express direction from Congress, courts should withhold copyright from these automated products").

of both clear doctrinal rules and the role of the human person in the legal and copyright context.[136] Optimal levels of investment in the creative industries requires predictable legal rules.[137] And, the bundle of rights associated with copyright is more easily regulated through entities with the legal ability to manage the rights and duties associated with copyright.[138] Most importantly, however, drawing on the utilitarian view of copyright, it would seem that machines (at least as they exist today) do not require the same incentives to create and, therefore, are not proper subjects of the authorial privileges associated with the copyright monopoly.[139] And though the Ninth Circuit Court of Appeals pointed out in *Urantia Foundation v. Maaherra*[140] that "copyright laws ... do not expressly require 'human' authorship," the US Copyright Office maintains that it will "register an original work of authorship, provided that the work was created by a human being."[141] Similarly, in 2006, the Federal Court of Australia ruled in *Acohs Pty. Ltd. v. Ucorp Pty. Ltd.* that a work generated by a computer could not be protected by copyright because a human did not produce it.[142] The European Court of Justice has signalled the same rule.[143]

This status quo with respect to the human authorship question may change, especially as machines achieve more human-like decision-making capacity. Policymakers might avoid confronting the legal and political hurdles associated with granting copyright to non-human subjects by vesting copyright directly in the programmers of the intelligent machinery.[144] Historically, video game display cases in the US were handled in this manner.[145] But while this approach has the benefit of analytical precision, it discounts the highly mediated relationship between a computer programmer, a user who operates generative software, and the resultant machine-generated output.

Another possible solution to the emerging authorship issues associated with AI is the work-made-for-hire doctrine.[146] The work-made-for-

136 See generally Boyle, James, *Endowed by Their Creator? The Future of Constitutional Personhood*, Brookings Institution Future of the Constitution Series, No. 10 (9 March 2011), available at http://www.brookings.edu/papers/2011/0309_personhood_boyle.aspx; Solum, Lawrence B., "Legal Personhood for Artificial Intelligences," *N. C. L. Rev.* (1992), 70:1231.

137 See e.g. Le Merle et al., *supra* note 84, at 25.

138 *Cf.* Solum, *supra* note 142 at 1244 (describing and highlighting potential flaws with this "responsibility objection").

139 See Samuelson, *supra* note 132 at 1200 ("The system has allocated rights only to humans for a very good reason: it simply does not make any sense to allocate intellectual property rights to machines because they do not need to be given incentives to generate output... Only those stuck in the doctrinal mud ... could even think that computers could be 'authors"'); Clifford, Ralph D., "Intellectual Property in the Era of the Creative Computer Program: Will the True Creator Please Stand Up?," *Tul. L. Rev.* (1997), 71:1675,1702–3 (arguing that AI-generated works should not be subject to copyright protection because "computer technology does not require an incentive to produce").

140 *Urantia Found. v. Maaherra*, 114 F.3d 955, 958 (9th Cir. 1997).

141 "Chapter 300: Copyright Authorship—What Can Be Registered," in *Compendium*, United States Copyright Office (revised 28 September 2017), available at https://copyright.gov/comp3/chap300/ch300-copyrightable-authorship.pdf; see also *Naruto v. Slater*, No. 15-CV-04324-WHO, 2016 WL 362231, at *1 (N.D. Cal. Jan. 28, 2016) (granting a motion to dismiss a copyright lawsuit brought by Naruto, a crested macaque, who took multiple photographs of himself ("selfies") on the grounds that the US Copyright Act did not confer standing to animals).

142 *Acohs Pty Ltd v. Ucorp Pty Ltd* [2012] FCAFC 16.

143 *Infopaq International A/S v. Danske Dagblades Forening*, C-5/08, [2009] ECDR 16; see also Guadamuz, Andres, "Should Robot Artists Be Given Copyright Protection," Raidió Teilifís Éireann (25 September 2017), https://www.rte.ie/eile/brainstorm/2017/0719/891386-should-robot-artists-be-given-copyright-protection/ ("What's more, case law from the European Court of Justice has declared on various occasions that copyright only applies to original works, and originality must reflect the 'author's own intellectual creation.' This is usually understood as meaning that an original work must reflect the author's personality, which clearly means that a human author is necessary for a copyright work to exist").

144 Bridy, *supra* note 97 at 50–68.

145 See e.g. *Stern Elec. v. Kaufman*, 669 F.2d 852 (2d Cir. 1982); *Atari, Inc. v. North American Philips Consumer Elec. Corp.*, 672 F.2d 607, 610 (7th Cir. 1982).

146 Bridy, *supra* note 97 at 66–8.

hire doctrine permits "the employer or other person for whom the work was prepared"[147] to be considered the legal author of a creative work. As explained by one scholar,

> treating the programmer like an employer—as the author-in-law of a work made by another—would avoid the problem of vesting rights in a machine and ascribing to a machine the ability to respond to copyright's incentives. It would also avoid the expedient logic that conflates the author's author (i.e., the programmer) with the actual author (i.e., the generative program).[148]

Scholars have long argued that copyright authorship of computer-generated works should be attributable to the original programmer rather than a user in the scenario only where a "computer-generated work incorporates recognizable blocks of expression from the underlying programs ..."[149] However, to the extent that a user is responsible for the creative content of his or her design, it would be far more logical to vest authorship rights in the user rather than the source programmer.[150] The degree to which a human is involved in what the program is capable of and how it generates art is clearly important to the question of authorship. But it is increasingly likely that we will reach a point where machine learning or AI systems will create art without much human intervention at all.

Putting aside this important nuance, granting authorship rights in AI generated outputs to programmers vis-à-vis the work-made-for-hire doctrine is an approach for which there is some international precedent.[151] In both the UK and New Zealand, computer-generated works are defined as works "generated by a computer in circumstances such that there is no human author," while Irish law defines the term as one that is "generated by computer in circumstances where the author of the work is not an individual."[152] Under these statutes, the copyright in computer-generated works vests in "the person by whom the arrangements necessary for the creation of the work are undertaken," who, similar to the employer under the US work-made-for-hire doctrine, is interpreted as the author for statutory purposes.[153] As one scholar highlights, "[t]hese provisions do not imply or assume a human author in the absence of one; rather, they expressly create a legal fiction of authorship by means of which copyright vests as a matter of law in a party who is not the author-in-fact."[154]

Even a high-level analysis of the authorial issues implicated by works created by advanced technology reveals significant gaps in current international and national copyright law, which must be addressed as private sector investment and innovation in AI grow. Though the work-made-for hire doctrine may lend itself well to solving (at least some of) the authorship questions implicated by AI, other threshold issues, including that of originality, must also be addressed to ensure copyright does not haphazardly impede the development and dissemination of AI technologies. Notably, the absence of a global framework may influence how firms determine in which jurisdictions to anchor AI-generated creative output, potentially prompting a global "race to the bottom" in search of the most favourable rules.

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147 17 USC. § 201(b).

148 Bridy, *supra* note 97 at 66.

149 See Samuelson, *supra* note 132 at 1215.

150 See generally Samuelson, *supra* note 132.

151 Guadamuz, Andres, "Artificial Intelligence and Copyright," *WIPO Magazine* (October 2017), available at http://www.wipo.int/wipo_magazine/en/2017/05/article_0003.html.

152 Bridy, *supra* note 97 at 67.

153 *Id.* at 67–8.

154 *Id.*

3.3 An "Originality" Doctrine for Artificial Intelligence-Generated Works

Beyond questions of authorship, AI machines likewise raise the issue of whether the works they produce should be protectable as *original* expression. As highlighted above, the originality doctrine is codified to varying degrees across the international copyright landscape, though most jurisdictions converge on a decidedly low threshold. Underlying this debate is a definitional tension in copyright jurisprudence: the separation of protectable expression (which belongs to the domain of copyright) from non-protectable idea (which belongs to the realm of patent law). In this vein, works produced by AI will once again draw on the difficulty of relying on ill-fitting doctrinal precedents in order to formulate tests for teasing out original, protectable expression from the non-protectable, functional aspects and ideas of the technology—a phenomenon that played out over decades with respect to computer programs.[155]

In order to appreciate how the originality doctrine is implicated in regard to AI, one must first be clear about what inputs and outputs are at issue. AI's potential subjects of copyright protection include: (1) the final AI-generated output; (2) the user-generated code used to produce that output; and (3) the software code used to program the AI itself. As a threshold matter, jurisdictions across the globe will be forced to confront a thorny question of whether robots or AI machines should be considered "creative" entities for the purpose of copyright law. In other words, because various legal codes, including those of the US and the EU, require works to be original in the sense that they need some measure of independent or intellectual *creation*, the creative capacity of machines will be an issue implicated by the copyright eligibility of AI-generated works. This issue is closely related to the authorial question addressed above. Originality, as a distinct concept from authorship, will be forced to confront similar gaps between the legal framework of copyright law and the science of cognitive psychology in addressing policy considerations concomitant with Fourth Industrial era technologies.

Two primary approaches have emerged with regard to the subject of computational creativity. On the one hand, the romantic school of thought tends to define creativity in terms of human consciousness.[156] Commenting on the potential for machines to create in a similar manner to humans, the inventor Ada Lovelace cautioned,

> It is desirable to guard against the possibility of exaggerated ideas that might arise as to the powers of the Analytical Engine. The Analytical Engine has no pretensions whatever to originate anything. It can do (only) whatever we know how to order it to perform.[157]

Notable scholars, including in the AI world, recognise that Ada Lovelace's critique continues to resonate in an era where computers are mostly "still rely[ing] on humans in the first instance to dictate the rules according to which they perform."[158] On the other hand, computers are becoming increasingly advanced in terms of the randomness and unpredictability coded into their operation.[159] As a postmodern theorist might argue, the computational power

155 See generally Samuelson, Pamela, "Functionality and Expression in Computer Programs: Refining the Tests for Software Copyright Infringement," *Berkeley Tech. L. J.* (2016), 31:1215.

156 See Engle, Eric Allen, "An Introduction to Artificial Intelligence and Legal Reasoning: Using xTalk to Model the Alien Tort Claims Act and Torture Victim Protection Act," Rich. J.L. Tech. (2004), 11:53, 56–7, available at http://law.richmond.edu/jolt/v11i1/article2.pdf ("Computers are not more intelligent than humans. Humans are far more creative than the computer programs that they write").

157 Bridy, *supra* note 97 at 22 (quoting Lovelace).

158 *Id.* at 23.

159 Cf. Groenfeldt, Tom, "Lots of Data, One Analyst, Many Reports: Narrative Science," *Forbes* (5 September 2013), http://www.forbes.com/sites/tomgroenfeldt/2013/09/05/lots-of-data-one-analyst-many-reports-narrative-science/ ("One of the powerful aspects of our technology is that it is not template-driven. Each report is built from the ground up").

of machines is not significantly different from the human brain, which operates to some extent as a rule-bound, algorithmic organ.[160] Under this logic, "if there is a difference in the apparent rulishness of human and machine outputs, it can only be a difference in degree; as a qualitative matter, computers are as capable (or incapable) of originating things (i.e., of breaking rules) as people are."[161]

Philosophy aside, influential scholars have suggested that creativity—"the ability to generate novel, and valuable ideas"—must be defined in terms of novelty and the specific cognitive skills required to produce it.[162] But, even if AI machines become capable of achieving these goals, at a minimum policymakers must not recognise machine-based creativity for copyright purposes unless a consensus from the scientific community emerges that those machines are (or have become) responsive to the incentives at the core of the copyright system. If, however, only the programmers responsible for creating—or users accountable for operating—this advanced technology will respond to the economic incentive of the copyright monopoly, the rights and obligations of advanced technologies may (at least for now) be set aside until scientific and/or political realities change.

3.4 An Opportunity to Reassess Doctrine

The struggle to apply traditional copyright principles to technological advances recurs throughout the history of copyright law. Nonetheless, AI presents unique opportunities for re-evaluation of whether well-settled copyright norms, such as the low bar for originality and the requirement for human authorship, makes sense in the context of a creative world that is progressively more connected to robots and attenuated to human input. These questions are increasingly important as trade in cutting-edge technology increases, and as cutting-edge technology and the laws that regulate it shape markets and global channels through which both copyrighted and uncopyrighted goods flow.

Indeed, developing solutions to address the tension between copyright and new technologies will require paying special attention to the values that undergird the copyright system. In the not too distant future, originality may be driven more by the treatment of software in copyright law than by strained exercises to find something original because it originated from a human being. Momentum to stall efforts to harmonise the unitary copyright—the idea that all works, regardless of how they are created or what they are, are entitled to the same panoply of copyright entitlements—may be thwarted. At this early stage, it is unclear in which direction—stronger or weaker—changes in traditional copyright doctrine may go.

At the heart of these matters is the underlying logic of copyright itself. What should be copyright's prevailing justification if we took the pursuit of the public benefit seriously? Clearly, ensuring production of cultural goods remains salient in the era of digital trade. But this goal hardly seems in jeopardy. What appears to be at risk, instead, is the idea that copyright can evolve more meaningfully to require conditions in which human autonomy to access, use, remix, share, distribute, and create can coexist meaningfully with formal and informal market arrangements. With specific regard to AI, whether it is by moving up the supply chain and considering what incentives developers of AI systems need to focus on, or by determining the correct doctrinal boundaries that will push developers and artistic collaborators in the most innovative directions, the copyright regime still has the ability to shape the behaviour and development of art-generating AI systems. Underlying the doctrine of originality could merely be an interest in a policy lever to encourage production. To the extent that utilitarianism is a synonym for production, AI

160 Bridy, *supra* note 97 at 28.

161 *Id.* at 27.

162 Boden, Margaret, "Computer Models of Creativity," *AI Magazine* (2009), 30:23,24.

may require a heftier originality doctrine by requiring heightened forms of originality for AI-created works. Policymakers should reorient the focus of copyright policy from the veneration of an arbitrary author-figure to principles that could support competitive creativity by human and machine authors, while doubling down on levers that ensure access to knowledge goods because such goods are fundamental to the human capacity to flourish in political and economic terms. Such a reorientation may require alternative models of copyright that privilege marketplace competition and human dignity over author-centricity.

4. THE FIRST SALE DOCTRINE/EXHAUSTION AND DIGITAL TRANSMISSIONS

Since its inception, advances in content-related technologies have continuously recalibrated the animating values of the limited-term copyright monopoly.[163] The internet, however, presents a particularly unique technological advancement. Digital transmissions of copyrightable content have the potential to affect multiple exclusive IP rights, chief among them the reproduction right, the distribution (or in some cases, the making available)[164] right, and the display right.[165] Though many traditional copyright doctrines have been dramatically affected by the advent of online networks, the first sale doctrine has attracted significant attention.[166] This section will provide an overview of the doctrine's roots, followed by a comparative perspective on the rule, before highlighting challenges to the first sale doctrine arising from digital trade of copyrighted goods.

4.1 Doctrinal Overview

The first sale doctrine serves as a limit to a copyright owner's distribution right.[167] It allows a lawful owner of a copy of a protected work to resell or otherwise dispose of that copy without the permission of the copyright owner.[168] In other words, once a physical[169] copy of a protected work has been lawfully transferred, the copyright holder no longer retains exclusive rights over the future disposition of that particular copy of his or her work, thereby permitting the new owner to sell the work, rent it, lend it, or gift it without any input from the copyright holder. The markets created by the first sale principle are often described as "secondary markets," which enable the operations of important societal resources, such as libraries and archives.[170]

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163 See Wu, *supra* note 23.

164 As referenced above, the WCT for the first time included "the exclusive right of authorizing the making available to the public of the original and copies of their works through sale or other transfer of ownership." See WCT, *supra* note 52 at art. 6. Though the US Copyright Act does not provide for an explicit "making available" right, the Copyright Office nonetheless maintains that Section 106 of the Copyright Act complies with WCT obligations. *See The Making Available Right in the United States*, United States Copyright Office (2016), available at https://www.copyright.gov/docs/making_available/making-available-right.pdf.

165 See e.g. *Capitol Records, LLC v. ReDigi Inc.*, 934 F. Supp. 2d 640, 649–50 (S.D.N.Y. 2013) ("Because the reproduction right is necessarily implicated when a copyrighted work is embodied in a new material object, and because digital music files must be embodied in a new material object following their transfer over the Internet, the Court determines that the embodiment of a digital music file on a new hard disk is a reproduction within the meaning of the Copyright Act").

166 Internationally, the first sale doctrine is often thought of synonymously with the "exhaustion doctrine." See Rothchild, John A., "Exhausting Extraterritoriality," *Santa Clara L. Rev.* (2011), 51:1187. The exhaustion doctrine, however, has common law breadth that is broader in scope than the first sale rule explained below. See Perzanowski, Aaron and Schultz, Jason, "Digital Exhaustion," *U.C.L.A. L. Rev.* (2011), 58:889,912 ("Rather than understanding the first sale doctrine as an important but idiosyncratic limit on the distribution right, this Article suggests that first sale is the primary, but not solitary, illustration of a generalizable principle of copyright exhaustion. In the most general terms, the exhaustion principle holds that a fundamental set of user rights or privileges flows from lawful ownership of a copy of a work. These privileges apply to the full range of exclusive rights, not just the distribution right. Although the precise shape and scope of exhaustion privileges vary, they permit activities incidental to the use and enjoyment of copies by their owners"). This distinction, though important, will not be the focus of this article. And, for the sake of clarity and ease, I will use the terms "exhaustion" and "first sale" interchangeably.

167 See 17 USC. § 109(a).

168 See *Quality King Distributors, Inc. v. L'anza Research International, Inc.*, 523 US 135, 142 (1998) (quoting 17 USC. § 109(a)).

169 The doctrine's applicability to digital transmissions will be discussed at length below. For the sake of clarity, I refer to a "physical" copy here not because the Copyright Act's mandates it, but because the case law interpreting the first sale doctrine has thus far circumscribed the limitation to physical copies of protected works. See e.g. *ReDigi*, 934 F. Supp. 2d at 654–5.

This legal construct, sometimes referred to as embodying the "single-reward principle," operates in various territorial boundaries (domestically, regionally, or internationally), depending on domestic legislative design or judicial interpretation.[171]

Stemming from English common law,[172] the first sale rule's doctrinal roots in the US date back to the seminal Supreme Court case of *Bobbs-Merrill Co. v. Straus*.[173] In that matter, a book publisher sued the owner of a store for copyright infringement, arguing that resale of its copyrighted books at discounted prices infringed its exclusive distribution right.[174] In finding the store's resale lawful, the Court concluded, "[t]he purchaser of a book, once sold by authority of the owner of the copyright, may sell it again, although he could not publish a new edition of it."[175]

Though the statute does not expressly state the geographical scope of the doctrine,[176] the US recently joined the ranks of countries such as Switzerland[177] in deciding that the first sale doctrine allows copies of works lawfully made and purchased abroad to be imported into the US without permission from the rights holder.[178] Over time, courts and scholars have continued to debate the social and economic virtues of exhaustion. Justifications for the rule include to: (1)promote access to (affordable) protected works; (2) preserve protected works and the culture embodied within them; (3) safeguard consumer privacy and anonymity; and (4) enhance transactional clarity.[179]

Concerning access, the first sale doctrine ensures the existence of secondary markets—that operate beyond a copyright holder's control—for creative works, thereby increasing the supply of copies available for purchase and decreasing the cost of those second-hand editions.[180] Secondary markets promote competition among copyright market participants and in so doing lower the prices

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170 Reese, R. Anthony, "The First Sale Doctrine in the Era of Digital Networks," *B. C. L. Rev.* (2003), 44:577,586 ("The first sale doctrine also provides many consumers the chance to purchase a copy of the work at a price lower than that charged by the copyright owner or by the initial retailer, who generally passes along the copyright owner's price as well as the retailer's mark-up. It does so by allowing the development of secondary markets for the sale of copies. Because the copies sold in these secondary markets are previously owned, rather than new, they usually sell at a lower price than that charged originally for a new copy of the work. And because a single copy of a work can usually be sold repeatedly on the secondary market (perhaps at decreasing prices as the copy becomes more worn), each copy may allow several consumers to enjoy the lower price generally charged for a used copy. Used bookstores and used record stores are two primary examples of secondary markets for copyrighted works").

171 See Rothchild, *supra* note 16.

172 H.R. Rep. No. 98-987, at 2 (1984).

173 210 US 339, 350 (1908); Dobson, Monica L., "Comment: ReDigi and the Resale of Digital Media: The Courts Reject A Digital First Sale Doctrine and Sustain the Imbalance Between Copyright Owners and Consumers," *Akron Intell. Prop. J.* (2015), 7:179,182.

174 *Bobbs-Merrill Co.*, 210 US at 341–42.

175 *Bobbs-Merrill Co.*, 210 US at 349–50.

176 17 USC. § 109(a).

177 *Exhaustion of IPRs in Cases of Recycling and Repair of Goods*, AIPPI Report Q205, Swiss Group (2015), available at https://aippi.org/download/commitees/205/GR205switzerland.pdf.

178 See *Kirtsaeng v. John Wiley & Sons, Inc.*, 568 US 519, 530 (2013).

179 See Perzanowski and Schultz, *supra* note 163 at 894 (explaining the animating policies of the doctrine and arguing that it likewise increases innovation and platform competition); Reese, *supra* note 170 at 584 (discussing the doctrine's access, preservation, and privacy aims).

180 See Perzanowski and Schultz, *supra* note 163 at 895 ("Secondary markets also increase both affordability and availability of copyrighted goods by enabling rental-based business models, product sampling, and the recouping of consumer costs through resale or gifting").

for goods and broaden the potential audience for those works.[181] These secondary markets likewise help ensure that works that become unavailable—due to, among other things, commercial viability, authorial abandonment, or cultural suppression—are preserved for the benefit of society at large.[182] These preservation measures not only ensure that works continue circulating in global markets, but also prevent loss from degradation or technical compatibility.[183] Next, the first sale doctrine protects consumer privacy by ensuring that consumers who deal in secondary markets can do so privately, anonymously, and without permission from or disclosure to the copyright owner.[184] This privacy buffer is especially important for culturally controversial or otherwise sensitive subject matters.[185] Finally, as a bright-line rule, the first sale doctrine promotes transactional clarity by obviating the need (or owner incentive) to impose complex and/or cost-prohibitive conditions on the operation of resale or lending business models.[186]

4.2 The First Sale Rule/Exhaustion in Global Markets

Exhaustion is not mentioned in the Berne Convention or the Rome Convention of 1961.[187] The WCT,[188] TRIPS,[189] and the WPPT,[190] explicitly reference the doctrine, however, neither the WCT, TRIPS, nor the WPPT mandate member nations to enforce an international, regional, or national exhaustion regime, or to regulate the issue at all.[191] Instead, similar language in each treaty leaves the implementation of the first sale doctrine to national policymakers.[192]

Beyond the US, many countries have opted to legislate first sale principles. For example, recognising that exhaustion aims "to strike a balance between the necessary protection of intellectual property rights, which notionally confer on their holders a monopoly on exploitation, and the requirements of the free movement of goods,"[193] the European Union operates under a regime of regional copyright exhaustion.[194] The European exhaustion

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181 Reese, *supra* note at 170 at 586 ("Used bookstores and used record stores are two primary examples of secondary markets for copyrighted works. Experience and evidence suggest that such secondary sales markets are significant, though I have been unable to find comprehensive statistics. By way of example, used books accounted for fifteen percent of Amazon's book sales in the second half of 2002, and in the third quarter of 2001, seventeen percent of all goods sold on Amazon.com were used goods. Similarly, those responding to an annual survey by the National Association of Recording Merchandisers reported that in 2000 they sold about $285 million worth of used CD albums, about 2.7% of the total dollar volume of sales of audio recordings by responding merchants").

182 See Perzanowski and Schultz, *supra* note 163 at 895–7.

183 *Id*.

184 *Id*.

185 *Id*.

186 *Id*.

187 See Berne Convention, *supra* note 47; International Convention for the Protection of Performers, Producers of Phonograms and Broadcasting Organizations, 26 October 1961 (Rome 1961), 496 U.N.T.S. 43.

188 See WCT, *supra* note 52 at arts. 6.

189 See TRIPS Agreement, *supra* note 34 at art. 6.

190 See WIPO Performances and Phonograms Treaty art. 12, 20 December 1996, S. Treaty Doc. No. 105–17, 36 I.L.M 76.

191 See e.g. WCT *supra* note 52 at arts. 6 ("Nothing in this Treaty shall affect the freedom of Contracting Parties to determine the conditions, if any, under which the exhaustion of the right in paragraph (1) applies after the first sale or other transfer of ownership of the original or a copy of the work with the authorization of the author").

192 *Id*.

193 See Opinion of Advocate General Bot in CJEU, Case C-128/11, UsedSoft GmbH v. Oracle International Corp., delivered on 24 April 2012, at § 43.

194 Directive 2001/29/EC of the European Parliament and of the Council of 22 May 2001, art. 4, 2001 O.J. (L 167) 28; see also Pope, Alexander B., "A Second Look at First Sale: An International Look at US Copyright Exhaustion," *J. Intell. Prop. L.* (2011), 19:201,216–17 ("The European Community, for purposes of regional exhaustion, consists of twenty-seven member nations of the EU as well as another three nations, which are not EU members but are included in the regional exhaustion regime... ").

rule is incorporated in various international agreements among the nations of the European Community[195] along with a number of EU directives, such as the Information Society Directive (InfoSoc Directive) and the Software Directive.[196] Simply, the rule means that a copyright holder's distribution right[197] is exhausted within the European Community where the first sale or other transfer of ownership within the European Community is made by the rights holder or with his or her consent.[198] Additionally, Recital 28 to the InfoSoc Directive refers expressly to the "exclusive right to control distribution of the work incorporated in a tangible article."[199] According to Recital 29,

> The question of exhaustion does not arise in the case of services and on-line services in particular... Unlike CD-ROM or CD-I, where the intellectual property is incorporated in a material medium, namely an item of goods, every on-line service is in fact an act which should be subject to authorization where the copyright or related right so provides.[200]

Japan takes a somewhat different approach, applying the first sale rule differently based on the type of work at issue. Japanese copyright law grants authors the exclusive right to offer their works (other than cinematographic works) to the public by transferring ownership of the original or reproductions.[201] This distribution right is limited by a rule of international exhaustion for copyrighted goods.[202] Concerning cinematographic works, however, the Supreme Court of Japan has made a distinction between (1) creative works destined for movie theatres; and (2) films used for home video game consoles.[203] Though the Copyright Act exempts "cinematographic work[s]" from the first sale doctrine, the Supreme Court ruled that, for films used for home video games consoles, the copyright is exhausted upon lawful assignment by the rights holder.[204]

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195 See e.g. Treaty Establishing the Economic Community, art. 30, 25 March 1957, 298 U.N.T.S. 11 [hereinafter EEC Treaty].

196 Directive 2001/29, of the European Parliament and of the Council of 22 May 2001 on the Harmonisation of Certain Aspects of Copyright and Related Rights in the Information Society, (O.J. 2001 L 167 p.12); Article 4 of Directive 2009/24/EC, of the European Parliament and the Council of 23 April 2009 on the Legal Protection of Computer Programs (O.J. 2009 L 111, p.18). Article 4(2) of the Software Directive establishes a broader exhaustion rule than that which is contained in the InfoSoc Directive. *Id.* It states, "[t]he first sale in the Community of a copy of a program by the right holder or with his consent shall exhaust the distribution right within the Community of that copy." Id. Article 5(1) of the Software Directive includes the exemption that the reproduction of a computer program "shall not require authorization by the right holder where they are necessary for the use of the computer program by the lawful acquirer in accordance with its intended purpose." *Id.* at art. 5.

197 Article 3(3) of the Information Society Directive says that the copyright holder's exclusive right to make available, or communicate, his or her work to the public communication to the public right is not exhausted. See InfoSoc Directive, *supra* note 62 at art. 3, p. 16. Article 4(2) clarifies that the distribution right is exhausted if there is a first sale or other transfer of ownership in the community in respect to the original or copies of the work. Id. at art. 4, p. 16.

198 *Id.*

199 *Id.* at 12.

200 *Id.*

201 See *Working Guidelines: Exhaustion Issues in Copyright Law*, AIPPI Report Q240, AIPPI (2014), available at http://aippi.org/wp-content/uploads/committees/240/WG240English.pdf (citing Article 26 of the Japanese Copyright Act).

202 See Mehra, Salil K., "Copyright, Control, and Comics: Japanese Battles Over Downstream Limits on Content," *Rutgers L. Rev.* (2003), 56:181, 212-23 (discussing the development of the first sale doctrine in Japan).

203 See AIPPI, *supra* note 201 at 5; see also Mehra, *supra* note 202 at 214.

204 *Id.*

4.3 First Sale/Exhaustion in the Digital Era

With its roots in physical goods, the first sale doctrine has confronted significant challenges in light of global digitisation.[205] The source of this tension is multifaceted and presents serious policy concerns over the extent to which society can and should have access to secondary markets for digital goods.

To appreciate the hostility that the first sale doctrine faces in the digital environment, it is critical to understand the nature of the "threat" that online platforms present to copyright holders.[206] Fundamentally, digitised content differs from traditional print-based works because of the ease with which perfect copies of digital works can be made.[207] No longer dependent on time- and labour-intensive printing and distribution channels, digital goods are copied, mass-produced, and shared efficiently across the globe at relatively low to no cost.[208] Digital copies of copyrighted works also differ from their physical counterparts in their ability to withstand degradation.[209] Though technological advances and compatible functionalities may change over time, thereby affecting the marketability of digital products, digitised content is largely immune from the wear and tear that physical goods undergo throughout their lifetime.[210] With this in mind, copyright industries argue that illegal digital trading of protected works can undermine the incentive to create, and accordingly the digital environment presents a fundamentally different policy landscape from that which has traditionally dominated physical goods.[211]

Moreover, judicial interpretation of how computing technology fits within the copyright framework—at least in the US—presents a challenge to first sale principles. In a seminal case, *MAI Systems Corp. v. Peak Computer, Inc.*,[212] the Ninth Circuit Court of Appeals established the now settled RAM doctrine when it held that the loading of digital files on to a computer's RAM implicates the reproduction right.[213] Nearly 20 years later, relying on the reasoning in *MAI Systems* and its progeny, a district court rejected the argument that the first sale doctrine should apply to digital sound recordings. In *Capitol Records, LLC v. ReDigi Inc.*,[214] the plaintiff record company sued the operator of a website that specialised in the

205 See White Paper, *supra* note 51 at 35–6.

206 See e.g. Green Paper, *supra* note 9 at 35–6.

207 *Id.*; White Paper, *supra* note 51 at 67 (underscoring that the "significant risk of harm to the market for creative works" would result if the first sale doctrine applied to digital transmission because "[t]here is the potential for substitution in the market from perfect copies, with one-to-one substitution of customers; and the potential multiplication of copies... ").

208 *Id.*

209 See Schonhofen, Sven, "Usedsoft and Its Aftermath: The Resale of Digital Content in the European Union," *Wake Forest J. Bus. Intell. Prop. L.* (2016), 16:262,264 (explaining that "[c]opies of used digital content can ... retain their value and compete on price in secondary markets with digital goods distributed for the first time by owners").

210 See White Paper, *supra* note 51 at 65–6 ("Physical copies of works degrade with time and use, making used copies less desirable than new ones. Digital information does not degrade, and can be reproduced perfectly on a recipient's computer. The 'used' copy is just as desirable as (in fact, is indistinguishable from) a new copy of the same work. Time, space, effort and cost no longer act as barriers to the movement of copies since digital copies can be transmitted nearly instantaneously anywhere in the world with minimal effort and negligible cost. The need to transport physical copies of works, which acts as a natural brake on the effect of resales on the copyright owner's market, no longer exists in the realm of digital transmissions [internal citations omitted]").

211 *Id.* at 51.

212 991 F.2d 511, 518–19 (9th Cir. 1993), *cert. dismissed*, 510 US 1033 (1994).

213 See Serra, Theodore, "Rebalancing at Resale: ReDigi, Royalties, and the Digital Secondary Market," *B.U. L. Rev.* (2013), 93:1753,1764 ("In 1995, the Clinton Administration issued a white paper reinforcing this interpretation. Later, Congress effectively ratified this view by adding an exception to § 117 to allow computer repair technicians to make such RAM copies. Outside § 117, copies made in RAM or elsewhere during a computing process can infringe a copyright holder's exclusive reproduction rights under § 106(1). Consequently, when copying occurs in the transfer process at resale, such as during uploading and downloading from the ... cloud, infringement also occurs").

214 934 F. Supp. 2d 640 (S.D.N.Y. 2013).

resale of digital music files lawfully purchased on iTunes.[215] While recognising that the dispute represented "a fundamental clash over culture, policy, and copyright law," the court limited its analysis to "narrow, technical, and purely legal" issues, holding that ReDigi infringed the plaintiff's reproduction right and distribution right.[216] Since the first sale doctrine applies only to the distribution right, ReDigi was liable for violating the record company's exclusive right to reproduce copies of its music.[217] Further, since ReDigi's distribution of digital music files created infringing copies, the court concluded that first sale doctrine—which covers copies "lawfully made under this title"—did not apply.[218] Finally, the court rejected ReDigi's policy arguments, citing instead a report by the United States Copyright Office, which rejected a proposed extension of the first sale doctrine to the distribution of digital works.[219] Ultimately, the court made clear that the issue was better left to Congress to define (or redefine) the applicability of the first sale doctrine to digital goods.[220]

The *ReDigi* court's application first sale doctrine, however, has not been uniformly accepted in all jurisdictions. In *UsedSoft GmbH v. Oracle International Corp.*,[221] the Court of Justice of the European Union (CJEU) was asked to decide whether the first sale doctrine applied to software.[222] In this matter, Oracle sued UsedSoft for operating a used software licensing business model of which Oracle software was a part.[223] Oracle's software agreement with its customers was governed by a licence which provided that, in return for a fee, the customer would receive a non-exclusive, non-transferable right to use the software for an unlimited time.[224]

On appeal, the CJEU rejected Oracle's arguments, holding that, regarding the licence agreements in question, UsedSoft had not infringed Oracle's rights of reproduction or distribution. More precisely, the CJEU held that a copyright holder's exclusive right to distribute a copy of a computer program is exhausted if:

1. there is a "sale" in accordance with Article 4(2)[225] of the Software Directive;

2. the "sale" is predicated on the basis of payment in order that the copyright holder "obtain[s] an appropriate remuneration;" and

3. there is a transfer of ownership of the copy of the computer program.[226]

Moreover, since the "first acquirers" of Oracle's software had satisfied these criteria, the CJEU held that Oracle's rights of distribution had been exhausted under Article 4(2) of the Software Directive.[227] With respect to the reproduction right , the CJEU held that "[s]

215 *Id.* at 645.

216 *Id.* at 645, 654–6.

217 *Id.*

218 *Id*; 17 USC. § 109.

219 *Id.*

220 *Id.*

221 Case C-128/11, UsedSoft GmbH v. Oracle International Corp., 2012 E.C.R. I-0000.

222 In the first instance, Oracle brought its suit before a regional court in Munich, where it obtained an injunction restraining UsedSoft from engaging in second-hand software sales. UsedSoft appealed to the German Federal Court, which then referred various questions regarding the interpretation of the Software Directive to the ECJ. *Id.* at 27–29, 34.

223 *Id.* at 20–26.

224 *Id.* at 23.

225 Article 4(2) provides that the first sale of a copy of a program by the rights holder or with their consent in the EU exhausts the distribution right of that copy within the EU. *Id.* at 8.

226 *Id.* at 89(1)–(2).

227 *Id.*

ince the copyright holder cannot object to the resale of a copy of a computer program for which that right holder's distribution right is exhausted under Article 4(2) of the Software Directive ... a second acquirer of that copy and any subsequent acquirer are 'lawful acquirers' of it within the meaning of Article 5(1)... "[228] In sum, the rule emerging from *UsedSoft GmbH* is that software copyright owners cannot prohibit the resale of software that operates under a perpetual licence. Instead, the holder of a perpetual user licence is allowed to sell that licence to buyers (such as UsedSoft), who then become "lawful acquirers" of the software and can benefit from the right of reproduction.[229]

Clarifying the scope of the first sale doctrine for digital goods is an issue of increasing economic significance, and the *ReDigi* and *UsedSoft GmbH* decisions have sown uncertainty about what forms of commerce in copyrighted materials are permissible. Further complicating this question is the growing trend of licencing copyrighted goods rather than transferring ownership outright.[230] Tellingly, some of the most popular content-based businesses—such as Netflix, iTunes, and Amazon's Kindle Store—operate by licensing digital content to their customers.[231]

Though consumers frequently operate under the assumption that the digital content that they purchase is property that they "own," much of the music and e-books circulating through digital markets are made available to consumers under strict, non-negotiable licensing agreements, most of which are buried deeply in a click- or browse-wrap agreement that explicitly prohibits subsequent sales of purchased content.[232] Consumer advocacy groups, various members of academia, and certain industry representatives decry this recent shift to permission-based content models.[233] These advocates point out that permission-based models may be revoked or changed at the whim of the rights holder, threaten rental and lending markets at large, and decrease competition necessary for consumer access and affordability.[234] As the US Copyright Office warned in its 2001 report regarding the fate of first sale doctrine, the content industry's increasing reliance on digital licensing instead of ownership is having "serious consequences for ... the first sale doctrine... "[235]

In response, copyright owners argue that the incongruity between the physical and digital realms precludes applicability of the first sale doctrine to digital transmissions.[236] Because "forward-and-delete" technology has not yet advanced to the point of sufficient functionality, rights holders argue that rampant piracy and the resultant destruction of the legitimate, primary markets for copyrighted goods present far too high a risk to the careful balance of the copyright bargain.[237] Moreover, strong copyright interests point out that leaving control with rights holders not only permits consumer-friendly price discrimination but

228 In relevant part, Article 5(1) provides that, unless otherwise specified, the act of reproduction under Article 4(1) does not require authorization by the rights holder where it is necessary for the use of the computer program by a lawful acquirer. *Id.* at ¶ 80.

229 This applies even where, as was the case in Oracle's case, the licence agreement states that it is non-transferrable. *Id.* at 23.

230 See White Paper, *supra* note 51 at 36, 42–44.

231 *Id.*

232 See Reis, Sarah, "Toward A 'Digital Transfer Doctrine'? The First Sale Doctrine in the Digital Era," *NW. U. L. Rev.* (2014), 109:173,197–200.

233 See e.g. "You've Been Owned: Stand Up For Digital First Sale," Electronic Frontier Foundation, available at https://action.eff.org/o/9042/p/dia/action/public/?action_KEY=8935.

234 See White Paper, *supra* note 51 at 45.

235 *DMCA Section 104 Report*, United States Copyright Office, Library of Congress (2001), xvii, available at http://www.copyright.gov/reports/studies/dmca/dmca_study.html.

236 See White Paper, *supra* note 51 at 51–4.

237 *Id.*

also enables permission-based content models to tailor their price and access structure to consumer preferences.[238]

Ultimately, however, shifting from a regime of statutory guarantees to access-based licensing models has the effect of endowing content owners with increased control over their works, thereby undermining the "freedom for users and [the] full enjoyment of copyrighted works."[239] Despite strong industry lobby against the extension of the first sale doctrine into the digital realm, policymakers must maintain a careful watch over the impact that shifting business models have on the price and availability of copyrighted goods. In this context, scholars and industry experts have suggested that even if direct extension of the doctrine to digital transfers is infeasible, variations of the policy may become plausible and desirable alternatives.[240] These include applying the first sale exhaustion doctrine only to particular types of copyrighted content (such as e-books), confining the doctrine to content only (as opposed to non-purchase model content), or investing in forward-and-delete technology and confining the doctrine to only those sectors that employ such technology.[241]

In the meantime, the interests of entities whose essential functions are made possible by the first sale doctrine, such as libraries and archives, must receive particular attention. Without a comprehensive set of universal and mandatory copyright exceptions for these institutions, doctrines such as first sale are among the few doctrinal pillars upon which these critical entities may confidently rely. The international copyright framework leaves ample flexibility for nations to implement exhaustion rules to fit their domestic development agendas, but international consensus supporting ample and unrestricted access by the public is necessary to ensure that knowledge goods reach markets that already struggle with access to knowledge goods.

The first sale doctrine plays a critical role in the overall architecture of copyright law by ensuring that secondary markets of lower-cost copyrighted goods remain available to the consuming public. Unfortunately, because the first sale rule has been met with hostility by the copyright industries regarding digital transmission and the online marketplace for protected works, the gradual shift to digital content distribution threatens the vitality of exhaustion and its concomitant benefits. As demonstrated by some exhaustion policies around the globe, however, the first sale doctrine can be adapted to meet the needs of different political environments. And, even if direct extension of the doctrine cannot gain sufficient political traction domestically, international copyright and trade rules should consider whether the non-committal approach currently in force with respect to exhaustion serves the ultimate goal of promoting digital trade and ensuring optimal access to knowledge goods around the world. Though the first sale doctrine has not yet become a dead letter in the digital context, the "wait and see" approach adopted by governments such as the US must remain a watchful one.

238 *Id.*

239 *Id.* at 45.

240 *Id.* at 54–5 (citing, among other things, proposals by the Center for Democracy and Technology and the American Intellectual Property Law Association).

241 *Id.*; see also Reis, *supra* note 232 at 202–6.

5. TRADING INTO FAIR USE

A principal characteristic of the Fourth Industrial Revolution is collaboration and sharing; both have become essential components of the modern trading landscape.[242] From ride-sharing to peer-to-peer e-library lending, an increasing portion of consumption patterns evolve from a "sharing economy" fuelled by data that traverses the internet.[243] Much of this free flow of data is facilitated by a single, open-ended, and often misunderstood mechanism known as "fair use." Similar to the preceding section on the first sale doctrine, the following part will survey the legal foundations and justification of fair use and highlight various approaches that nations take concerning the general principles underlying the doctrine. The section then argues that fair use creates the conditions for cultural and economic progress and in so doing fosters the production of a diverse array of digital goods. Accordingly, this section notes with concern some technological shifts that curtail the availability of fair use. Like the end-runs around the exhaustion doctrine described in the previous section, these displacements of statutory entitlements pose a threat to creativity and commerce worldwide.

5.1 Doctrinal Overview

The power of fair use is considerable, described by some scholars as "the open ended possibility of the negation of copyright protection."[244] Though the doctrine—which allows courts to determine ex-post when particular uses should be not only permitted but also (importantly), uncompensated[245]—has various permutations across the globe, the American version stems from English common law dating back to the eighteenth century.[246] At this early stage, courts defined the scope of copyright by reference to a "fair abridgement" of the particular work in question.[247] These early courts reasoned,

> That part of the work of one author is found in another, is not of itself piracy, or sufficient to support an action; a man may fairly adopt part of the work of another: he may so make use of another's labours for the promotion of science, and the benefit of the public: but having done so, the question will be, Was the matter so taken used fairly with that view, and without what I may term animus furandi?[248]

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242 See generally Yaraghi, Niam and Ravi, Shamika, *The Current and Future State of the Sharing Economy*, Brookings India IMPACT Series No. 032017 (2017), available at https://www.brookings.edu/wp-content/uploads/2016/12/sharingeconomy_032017final.pdf.

243 The "sharing economy" is defined by a Brookings Institute Report as "the peer-to-peer based activity of obtaining, giving, or sharing access to good and services." *Id.* Marr, Bernard, "The Sharing Economy: What It Is, Examples, And How Big Data, Platforms And Algorithms Fuel It," *Forbes* (21 October 2016), https://www.forbes.com/sites/bernardmarr/2016/10/21/the-sharing-economy-what-it-is-examples-and-how-big-data-platforms-and-algorithms-fuel/#7cf8d0ad7c5a ("Alternative names for this phenomenon include gig economy, platform economy, access economy, and collaborative consumption").

244 Hughes, Justin, "Fair Use and Its Politics," in Okediji, Ruth, ed., *Copyright Law in an Age of Limitations and Exceptions* (2017), 234.

245 *Cf.* Ginsburg, Jane C., "Fair Use for Free, or Permitted-but-Paid?," *Berkeley Tech. L. J.* (2014), 29:1383,1385 ("The unpaid nature of fair use introduces pressures that may distort analysis, particularly of the 'transformative' character of the use, and of potential market harm").

246 Snow, Ned, "The Forgotten Right of Fair Use," *Case W. Res L. Rev* (2011), 62:135,141–2.

247 See *Dodsley v. Kinnersley* (1761) 27 Eng. Rep. 270 (Ch.). In other words, courts defined the question of infringement by attempting to draw a line between an "infringement of property" and "a fair abridgment," for which "[n]o certain line can be drawn ... [because] every case must depend on its own circumstances." *Id.* at 271.

248 *Cary v. Kearsley*, (1802) 170 Eng. Rep. 679, 680 (K.B.).

Drawing on these foundational principles, Justice Story's seminal opinion in *Folsom v. Marsh*[249] outlined the contours of the modern US fair use doctrine. In that case, two competing biographers disputed whether letters that had originally appeared in the plaintiff's compilation of George Washington's correspondences were "fairly" used in the defendant's second, later biography of the president.[250] Paving the way for the contemporary rule of reason test, Justice Story wrote that "the nature, extent, and value of the materials ... used" are dispositive considerations.[251] Further, he wrote,

> [W]e must often, in deciding questions of this sort, look to the nature and objects of the selections made, the quantity and value of the materials used, and the degree in which the use may prejudice the sale, or diminish the profits, or supersede the objects, of the original work.[252]

Congress amended the federal Copyright Act in 1976 to include a statutory defence to protect fair uses of protected works, modelled after Justice Story's importation of the English common law doctrine.[253] Specifically, Section 107 of the US Copyright Act provides that "the fair use of a copyrighted work ... for purposes such as criticism, comment, news reporting, teaching (including multiple copies for classroom use), scholarship, or research, is not an infringement of copyright."[254]

Scholars have justified the fair use rule on the basis of many theories.[255] A leading perspective views fair use as a response to market failure.[256] According to this theory, a finding of fair use is appropriate when transaction costs of negotiating a licence for the use of a copyrighted work are prohibitive, but the use is nonetheless socially desirable and does not present an undue risk to the copyright owner's primary market.[257] From a macroeconomic perspective, theorists argue that fair use plays a broader, public purpose cut from the cloth of a constitutional design.[258] Because society benefits from the creativity that flows from open access to information and information channels, fair use is appropriate, and indeed "promotes" the creative arts, "if the value to the public of a use outweighs the individual harm it creates."[259] For as Justice Story famously explained, "[i]n truth, in literature, in science and in art, there are, and can be, few, if any, things, which in an abstract sense, are strictly new and original throughout. Every book in literature, science and art, borrows, and must necessarily borrow, and use much which was well known and used before."[260] Other

249 9 F. Cas. 342 (C.C.D. Mass. 1841).

250 *Id.* at 345.

251 *Id.* at 344.

252 *Id.*

253 Copyright Act of 1976, Pub. L. No. 94-553, 90 Stat. 2541 (codified as amended at 17 USC. §§ 101–1301 (2012)).

254 17 USC. § 107.

255 In the US, the fair use doctrine is often grounded in the Constitution's IP clause. See US Const. art. 1, § 8 cl. 8. (describing the manner in which a limited term monopoly is granted to "promote the arts and sciences").

256 See Thau, Stephen B., "Copyright, Privacy, and Fair Use," *Hofstra L. Rev.* (1995), 24:179,193–4.

257 See generally Landes, William M. and Posner, Richard A., "An Economic Analysis of Copyright Law," *J. Legal Stud.* (1989), 18:325; Gordon, Wendy J., "Fair Use as Market Failure: A Structural and Economic Analysis of the Betamax Case and its Predecessors," *Colum. L. Rev.* (1982), 82:1600.

258 See Thau, *supra* note 256 at 197–9.

259 *Id.*

260 *Emerson v. Davies*, 8 F.Cas. 615, 619 (No. 4,436) (CCD Mass.1845). This rationale is often relied upon by courts in so-called "transformative use" cases, in which the allegedly infringing work incorporates the original, protected work in such a way as to "transform" the old work into something new and/or different. See Thau, *supra* note 256 at 197–9; see also Leval, Pierre N., "Toward a Fair Use Standard," *Harv. L. Rev.* (1990), 103:1105,1107 ("In short, our law recognizes that copyright is not an inevitable, divine, or natural right that confers on authors the absolute ownership of their creations. It is designed rather to stimulate activity and progress in the arts for the intellectual enrichment of the public").

scholars point to privacy and liberty interests to justify this defence to infringement.[261] Fair use is a balancing act: permitting too little taking undermines the progressive purpose of copyright, but permitting too much disincentivises the creation of new works.[262]

5.2 The Fair Use Doctrine in a Global Context

Despite its variable nomenclature, the general concept underlying the fair use doctrine appears in more than 40 nations' domestic copyright statutes.[263] A detailed, comparative analysis of these statutory constructs goes beyond the purview of this paper. However, an important and widespread variant of fair use is the doctrine of "fair dealing," which exists in various permutations across both current and former British territories, particularly in Commonwealth nations such as the United Kingdom (UK), Australia,[264] Canada,[265] and India.[266]

After over a century of common law usage, fair dealing was first enshrined as a rigid and limited construct in the UK Copyright Act in 1911.[267] Unlike its American counterpart, the UK's version of the fair dealing doctrine, which appears in Sections 29 to 30 of the Copyright, Designs and Patents Act of 1988, outlines a specific, closed universe of enumerated purposes for which a finding of fair dealing is appropriate.[268] These uses include (1) research or private study; (2) criticism or review; and (3) reporting current events.[269] Thus, to establish a successful defence of fair dealing in the UK, alleged infringers must prove: (1) that the use for which they made of the works falls into one of the statutorily enumerated categories; and (2) their use was "fair,"[270] according to the common law understanding of that

261 See Thau, *supra* note 256 at 201–4; see also *Harper & Row Publishers, Inc. v. Nation Enterprises*, 471 US 539, 549 (1985) ("[T]he author's consent to a reasonable use of his copyrighted works ha[d] always been implied by the courts as a necessary incident of the constitutional policy of promoting the progress of science ... since a prohibition of such use would inhibit subsequent writers from attempting to improve upon prior works and thus ... frustrate the very ends sought to be attained [internal citations omitted]").

262 See *Cambridge Univ. Press v. Patton*, 769 F.3d 1232, 1257-58 (11th Cir. 2014) (discussing calibration of fair use).

263 See Band, Jonathan and Gerafi, Jonathan, *The Fair Use/Fair Dealing Handbook* (2015), available at http://infojustice.org/wp-content/uploads/2015/03/fair-use-handbook-march-2015.pdf ("More than 40 countries with over one-third of the world's population have fair use or fair dealing provisions in their copyright laws. These countries are in all regions of the world and at all levels of development. The broad diffusion of fair use and fair dealing indicates that there is no basis for preventing the more widespread adoption of these doctrines, with the benefits their flexibility brings to authors, publishers, consumers, technology companies, libraries, museums, educational institutions, and governments. This is particularly the case considering that the copyright laws in many 'civil law' countries currently allow their courts to apply a specific exception in a specific case only if second and third steps of the Berne three-step-test are met. That is, the court may permit the use only if it determines that the use does not conflict with a normal exploitation of the work and does not unreasonably prejudice the legitimate interests of the rights holder. These steps are at least as abstract and difficult to apply as fair use or fair dealing").

264 Copyright Act 1968 (Cth) §§ 41A-43, 103AA-104 (Austl) (including enumerated "fair dealing" pursuits, such as for the purposes of research or study, criticism or review, parody or satire, reporting news, and a legal practitioner, registered patent attorney or registered trademarks attorney giving professional advice., though not all of these exceptions are available for all types of protectable works).

265 Copyright Act, R.S.C. 1985, c. C-24, §§ 29, 29.1, 29.2 (Can.).

266 Copyright Act, No. 14, § 52(1)(a) (1957) (India).

267 Copyright Act, 1911, 1 & 2 Geo. 5, c. 46, § 2, (Eng.); see also *Cambridge Univ. Press v. Patton*, 769 F.3d 1232, 1256 (11th Cir. 2014) ("Promoting the creation and dissemination of ideas has been the goal driving Anglo-American copyright law since the enactment of the first English copyright statute to explicitly vest copyright in a work's creator, the Statute of Anne of 1710, which declared that it was '[a]n Act for the Encouragement of Learning, by Vesting the Copies of Printed Books in the Authors ... during the Times therein mentioned'") (citing 8 Ann., c. 19 (1710)); Leval, *supra* note 260 at 1109–10.

268 Copyright, Designs and Patents Act, 1988, c. 48, pt. 1, ch. 3 (U.K.), available at http://www.opsi.gov.uk/acts/acts1988/ukpga_19880048_en_3#pt1-ch3-pb2-l1g29.

269 *Id.*

270 See Song, Seagull Haiyan, "Reevaluating Fair Use in China: A Comparative Copyright Analysis of Chinese Fair Use Legislation, the US Fair Use Doctrine, and the European Fair Dealing Model," *IDEA* (2011), 51:453,469.

term.[271] Moreover, if the allegedly infringing use was for purposes of criticism, review, or reporting of current events, the user must have also attributed the source as prescribed by law.[272] Courts operating under either a "fair use" or "fair dealing" legal regime are responsible for ascertaining on a case-by-case basis whether certain statutory conditions are present to render use permissible. But each jurisdiction employs rules with its own nuances, particularly concerning the types of work to which the fair dealing exception may apply and some criteria for the application.[273] Though fair dealing statutes tend to operate as more rigid and prescriptive constructs than Section 107,[274] nonetheless, based on developments in the judicial and legislative realms, fair dealing statutes across the globe have increasingly begun to resemble the more flexible fair use doctrine of the United States.[275]

For example, a 2004 decision by the Canadian Supreme Court infused substantial flexibility into that nation's fair dealing statute. In *CCH Canadian Ltd v. Law Society of Upper Canada*,[276] the defendants were charged with infringing copyright in various reported decisions, case summaries, statutes, and regulations by photocopying conducted by library patrons.[277] Carving out a clear space for "[u]ser rights[,]" the Court ruled that the defendants' activities satisfied the fair dealing exception[278] and articulated six flexible factors reminiscent of the United States' four.[279]

The merits of a flexible fair use model have likewise captured the attention of Australian

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271 *Id.* (discussing *Hubbard v. Vosper* [1972] 2 Q.B. 84 at 89–90 (Eng.), and the judicially created fairness factors, including: (1) the nature of the work; (2) how the defendant obtained the work; (3) the amount taken from the work; (4) purposes of the use; (5) effect of the use to the market; and (6) alternatives to the dealing).

272 *Id.*

273 See e.g. Copyright Act 1968 (Cth) § 40(3) (providing that only a "reasonable portion" of copying, for the purposes of research or study, either of an article in a periodical publication shall be permitted); see also id. at § 10 ("where a literary, dramatic or musical work (other than a computer program) is contained in a published edition of that work, being an edition of not less than 10 pages, a copy of part of that work, as it appears in that edition, shall be taken to contain only a reasonable portion of that work if the pages that are copied in the edition: (a) do not exceed, in the aggregate, 10 percent of the number of pages in that edition; or (b) in a case where the work is divided into chapters exceed, in the aggregate, 10 percent of the number of pages in that edition but contain only the whole or part of a single chapter of the work").

274 Austin, Graeme W., "Four Questions About the Australian Approach to Fair Dealing Defenses to Copyright Infringement," *J. Copyright Soc. USA* (2010), 57:611–12 ("It is often said that the principal advantage of the fair use defense is that it remains a highly flexible instrument. In contrast, defenders of the Commonwealth fair dealing approach insist that the current approach offers certainty, whereas the fair use defense is dogged by pervasive unpredictability").

275 See Band & Gerafi, *supra* note 263 at 1.

276 [2004] 1 S.C.R. 339 (Can.).

277 *Id.* At 1–3, 51.

278 Tabatabai, Fara, "A Tale of Two Countries: Canada's Response to the Peer-to-Peer Crisis and What It Means for the United States," *Fordham L. Rev.* (2005), 73:2321,2330 ("Characterizing fair dealing as a 'user's right' and counterweight to copyright, the court stated that fair dealing is 'an integral part of the Copyright Act [rather] than simply a defence.' To maintain the proper balance between copyrights and users' rights, courts must therefore give fair dealing a 'large and liberal' interpretation. For example, the court interpreted the fair dealing exception to exempt research for commercial purposes, as well as for charity and private study").

279 The factors are (1) the purpose of the dealing; (2) the character of the dealing; (3) the amount of the dealing; (4) alternatives to the dealing; (5) the nature of the work; and (6) the effect of the dealing on the work. Id. at 53. However, the effects of the court's analysis have been since cast in doubt by a recent federal court decision involving York University. See *Access Copyright v. York University*, [2017] 2017 FC 669 (Can.); see also Geist, Michael, "Ignoring the Supreme Court: Federal Court Judge Hands Access Copyright Fair Dealing Victory" (13 July 2017), http://www.michaelgeist.ca/2017/07/ignoring-supreme-court-trial-judge-hands-access-copyright-fair-dealing-victory/.

legislators and policymakers, who have been debating the merits of its fair dealing framework as compared to the more flexible fair use regime of the US since 1998.[280] Over the past two decades, multiple government inquiries have considered the question of whether Australia should adopt the more open-ended fair use doctrine. Most of the recommendations have supported the "fair use" model.[281] Most recently, the Productivity Commission in 2016 expressed its opinion that "Australia's copyright arrangements are weighed too heavily in favour of copyright owners, to the detriment of the long-term interests of both consumers and intermediate users," and that "[a]t its heart, Australia's exception for fair use should allow all uses of copyright material that do not materially reduce a rights holder's commercial exploitation of their work at the time of use."[282] Since the report, high-profile supporters and critics have weighed in on the debate, ensuring that resolution of the issue is far from over.[283]

Drawing on both the fair use and the fair dealing doctrines, the copyright statutes of the Republic of Korea and Taiwan reflect a mixed-use regime.[284] More precisely, in Taiwan, if an alleged infringer argues fair use, the defendant has the burden of showing: (1) in classic fair dealing fashion, that the use falls into a specific enumerated category provided by Articles 44–63; and (2) in classic fair use fashion, the dealing is fair based on statutory factors provided by Article 65(2).[285] This latter portion of the fair use inquiry, embodied in Article 65(2), draws on the same four statutory factors that appear in Section 107 of the US Copyright Act.[286] Similarly, in response to the US–Republic of Korea free trade agreement, the recently amended copyright statute in the Republic of Korea addresses the fair use of works that do not fall within the statutorily enumerated categories of permissible uses.[287] Article 35-2 provides that work not falling into the enumerated categories may be used "provided it does not conflict with a normal exploitation of copyrighted work and does not unreasonably prejudice the legitimate interest of the copyright holder."[288] To determine whether the use of a work is exceptional, the statute, like the Taiwanese model, instructs courts to evaluate the same Section 107 factors.[289]

Perhaps furthest away from the open-ended fair use paradigm are the civil law codifications of copyright exceptions,[290] chief among them the European Union's 2001 Information Society Directive.[291] The Directive sets forth an

280 See *The Case for Fair Use in Australia*, Australian Law Reform Commission, available at https://www.alrc.gov.au/publications/4-case-fair-use-australia/reviews-have-considered-fair-use.

281 Austin, *supra* note 274 at 618–22.

282 *Intellectual Property Arrangements*, Australian Productivity Commission, available at http://www.pc.gov.au/inquiries/completed/intellectual-property/draft/intellectual-property-draft.pdf.

283 See e.g. Johnston, Rae, "Wikipedia Is Joining the Fight to Update Australia's Fair Use Laws," *Gizmodo* (22 May 2017), https://www.gizmodo.com.au/2017/05/wikipedia-is-joining-the-fight-to-update-australias-fair-use-laws/.

284 See Song, *supra* note 270 at 487–8.

285 See Copyright Act, arts. 44–65 (2016) (Taiwan) (listing enumerated uses such as state agencies, education, academic research, culture reservation and promotion, news reporting, non-profit purpose, and computer program adaptation), available at https://www.tipo.gov.tw/public/data/61221027271.pdf.

286 *Id.* at art. 65.

287 § 8:13, South Korea, Patry on Fair Use § 8:13.

288 *Id.*

289 *Id.*

290 *Cf.* Hugenholtz, P. Brent and Senftleben, Martin R.F., *Fair Use in Europe in Search of Flexibilities* (2011), available at http://fordhamipconference.com/wp-content/uploads/2010/08/Hugenholtz_FairUseinEurope.pdf ("A possibly more important reason why laws of the author's rights tradition are less tolerant of unauthorized but 'fair' uses, lies in the natural rights rationale that underpins the author's rights paradigm. If protecting author's rights is essentially a matter of fairness, limitations to this right must remain 'exceptions.' Following this line of reasoning, courts in *droit d'auteur* jurisdictions have developed a rule of restrictive interpretation of copyright limitations").

291 Council Directive 2001/29, 2001 O.J. (L 167) 1, 16 (EC).

explicit list of 53 exceptions and limitations to the copyright holder's rights of reproduction and communication to the public, including activities such as "private copying" and use of copyrighted material by libraries.[292] Other than the mandatory exemption of temporary acts of reproduction, domestic exceptions to copyright are optional under the Information Society Directive.[293] Thus, the precise scope of copyright exceptions in any given EU nation may differ from country to country.[294] Nonetheless, at least one leading commentator has observed that an EU-style fair use may be in the making.[295]

In sum, although the classic American system, in which judges perform a multifactorial balancing analysis to determine whether a particular use was made correctly, offers an important model, jurisdictions instead have enacted provisions that embody fair use principles to varying, and mostly narrow, degrees. Fair use need not be an exclusive remedy in response to user engagement with cultural goods. Even in the US, enumerated exceptions remain important complements to the fair use doctrine in ensuring a robust architecture for a competitive copyright system.[296] The importance of these access-promoting copyright provisions have risen exponentially in the digital era.[297] In this digital space, information is efficiently shared, manipulated, copied, and distributed, all of which users have come to expect from their online experience. As each of these activities has become nearly ubiquitous across the globe, corresponding issues, such as policing of copyrighted content and the application of fair use and related doctrines, have become a unique challenge for rights holders, users, policymakers, and policy arbiters alike.

5.3 Fair Use in the Digital Economy

Since the onset of the information era, courts across the globe have been forced to consider how digital markets and the internet operate in a copyright ecosystem primarily designed for the physical world.[298] *Beginning with MAI Systems v. Peak Computer, Inc.*,[299] courts, at least in the United States, have accepted the conclusion that temporary reproductions of computer programs and indeed other digital data forms, in the memory of computers create a ''copy'' for purposes of the Copyright Act. Under this interpretation, however, the

292 *Id.* at art. 5.

293 *Id.*

294 See Hugenholtz and Senftleben, *supra* note 294 at 14–15 ("In this context, the implementation of the right of quotation reflected in Article 5(3)(d) ISD can serve as an example. French law is notoriously restrictive in allowing quotation only under strict conditions. By contrast, Nordic copyright law presents the quotation right as a relatively open rule of reason. For example, Article 22 of the Swedish Copyright Act provides that a published work may be quoted, 'in accordance with proper usage and to the extent necessary for the purpose.' This relatively abstract norm seems to leave room for a relatively broad spectrum of unauthorised transformative uses that exceed the traditional connotation of 'citation,' making the Nordic quotation right a fairly open norm").

295 P. Bernt Hugenholtz, Flexible Copyright: Can EU Author's Right Accommodate Fair Use?, in Ruth L. Okediji, ed., *Copyright Law in an Age of Limitations and Exceptions*, 275 (Oxford University Press, 2017)

296 See e.g. 17 USC. § 110; see also Song, *supra* note 270 at 469 n.131 (outlining copyright exceptions beyond the fair dealing statute under the UK Copyright Act).

297 See generally, Jerome H. Reichman, The Limits of 'Limitations and Exceptions' in Copyright Law, in Ruth L. Okediji, ed., *Copyright Law in the Age of Limitations and Exceptions*, 292 (Oxford University Press, 2017) (arguing that in the digital economy, limitations and exceptions –including 'the more agile fair use doctrine' - are insufficient to meet the access and use needs of scientific communities).

298 See e.g. *Lewis Galoob Toys, Inc. v. Nintendo of Am., Inc.*, 964 F.2d 965, 968 (9th Cir. 1992), as amended (5 August 1992) ("The Game Genie merely enhances the audiovisual displays (or underlying data bytes) that originate in Nintendo game cartridges. The altered displays do not incorporate a portion of a copyrighted work in some concrete or permanent form. Nintendo argues that the Game Genie's displays are as fixed in the hardware and software used to create them as Nintendo's original displays. Nintendo's argument ignores the fact that the Game Genie cannot produce an audiovisual display; the underlying display must be produced by a Nintendo Entertainment System and game cartridge. Even if we were to rely on the Copyright Act's definition of 'fixed,' we would similarly conclude that the resulting display is not 'embodied.' See 17 USC. § 101, in the Game Genie. It cannot be a derivative work").

299 991 F.2d 511 (9th Cir. 1993), *cert. dismissed*, 510 US 1033 (1994).

architecture of the digital space renders the reproduction right (along with the distribution and display rights) problematic by threatening to turn the average user into a serial infringer.[300] Likewise, the ease with which digitally enabled technologies can create and disseminate massive amounts of perfect copies creates a potentially devastating risk to the primary markets upon which creators depend.[301]

With these stakes looming large, litigation over internet- and computer-mediated technologies have brought to light the tenuous, yet critical, ground that fair use occupies in the digital environment. The doctrine has allowed for the flourishing of several areas of digital commerce. In the first case to present the issue of internet search engine functionality before the United States Courts of Appeal, *Kelly v. Arriba Soft Corp.*,[302] a photographer sued over search engine results that displayed his artwork in the form of thumbnail images.[303] The Ninth Circuit Court of Appeals rejected Kelly's theory of infringement and instead found for the defendant search engine corporation on the grounds of fair use, ruling that "Arriba's use of the images serves a *different function* than Kelly's use—improving access to information on the internet versus artistic expression."[304] Furthermore, because the thumbnails were small, low-resolution images, the court found that the "copied" images were unlikely to supersede the market for Kelly's work. The court extended its holding in *Perfect 10 v. Amazon*,[305] which held Google Image Search's unauthorised reproductions of images to be fair use.

Though *Kelly* and *Perfect 10* show the fair use doctrine's ability to foster new digital enterprises, digitised content threatens many industries, including the traditional literary sector and publishing firms.[306] The role that fair use might play in this context was highlighted by a dispute between two large publishing houses and a public university that, like many upper-level educational institutions, maintained an electronic course reserve portal that contained copies of various texts and chapters for professors and students.[307] Adjudicating the case, the United States Eleventh Circuit Court of Appeals articulated a fair use standard deferential to Georgia State University's educational purpose and remanded the case to the district court, which ultimately found some, but not all, of the university's reproductions to constitute fair use.[308]

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300 See Masnick, Mike, "How Many Times a Day Do You Violate Copyright Laws Without Even Realizing It," *TechDirt* (7 May 2014), available at https://www.techdirt.com/articles/20140430/17244727083/how-many-times-day-do-you-violate-copyright-laws-without-even-realizing-it.shtml.

301 Studies estimate that nearly 18 percent of Americans are acquiring music illegally, while 32 percent of Americans are engaging in pirated movie streaming. See Spangler, Todd, "Piracy Survey: 39% of US Consumers Don't Care that Studios Lose Money from Illegal Sharing," Variety (28 January 2017), available at http://variety.com/2017/digital/news/piracy-survey-consumers-studios-lose-money-1201961634/; Geddes, James, "57 Million Americans Are Downloading Music Illegally: Study," *Tech Times* (29 February 2016), available at http://www.techtimes.com/articles/137083/20160229/57-million-americans-are-downloading-music-illegally-according-to-new-study.htm.

302 336 F.3d 811, 815 (9th Cir. 2003).

303 *Id.*

304 *Id.* at 819 (emphasis added).

305 Perfect 10 v. Amazon, 508 F.3d 1146 (9th Cir 2007); *cf. Goldman v. Breitbart News Network*, No. 17-CV-3144 (KBF) (S.D.N.Y. 15 February 2018).

306 Early "coursepack" cases, Basic Books, *Inc. v. Kinko's Graphics Corp.*, 758 F.Supp. 1522, 1526 (S.D.N.Y. 1991), and *Princeton University Press v. Michigan Document Services, Inc.*, 99 F.3d 1381, 1383 (6th Cir. 1996) (en banc), did not result in a finding of fair use.

307 *Cambridge Univ. Press v. Patton*, 769 F.3d 1232, 1237–41 (11th Cir. 2014)

308 *Id.* at 1267, 1276; *Cambridge University Press v. Becker*, 2016 WL 3098397, 90 (N.D. Ga. 2016).

A similar case in India[309] involving Delhi University paved the way for a broader, more accommodating user-access space, particularly in the context of education.[310] In *University of Oxford v. Rameshwari Photocopy Services*, the defendant copy shop was sued by three, large international publishers—Oxford University Press, Cambridge University Press, and Taylor & Francis—for photocopying books and pages of copyrighted texts to create course materials known as course packs for Delhi University students.[311] Supported by the university, the copy shop argued that its copying of protected texts to create student course packs qualified as fair dealing under Indian law.[312] Ultimately, the Delhi High Court agreed and articulated a broad interpretation of India's educational use exception.[313]

Like courts, policymakers have struggled to fit international copyright norms into pre-digital statutory frameworks. To the chagrin of scholars' , the architecture of international copyright law leaves users no explicit "fair use" or "fair dealing" standard from which to measure permissible legal activity.[314] As a result of this ambiguity and the increased commercial and non-for-profit activity occurring online, copyright reform agendas among user-based interests and rights holders' interests have sharply diverged on how best to safeguard the ephemeral "balance" of copyright.[315] Particularly in the context of debates about fair use and user rights,[316] policy and scholarly debates have intensified more acutely over the now infamous three-step test embodied in the Berne Convention and expanded in TRIPS.[317] Indeed, the three-step test, which is required by the TRIPS Agreement, is arguably in some tension with the US fair use doctrine.[318]

309 Article 52 of the Indian Copyright Act states "[t]he following acts shall not constitute an infringement of copyright, namely: (a) a fair dealing with a literary, dramatic, musical or artistic work for the purposes of—(i) research or private study; (ii) criticism or review, whether of that work or of any other work; (b) a fair dealing with a literary, dramatic, musical or artistic work for the purpose of reporting current events—(i) in a newspaper, magazine or similar periodical or (ii) by broadcast or in a cinematograph film or by means of photographs." See the Copyright Act, No. 49 of 1999, [India Code] ch. XI (1957), Vol. 14 (Ind.).

310 *University of Oxford v. Rameshwari Photocopy Services* (2016) 2016 SCC OnLine Del 5128 (India), available at http://lobis.nic.in/ddir/dhc/RSE/judgement/16-09-2016/RSE16092016S24392012.pdf.

311 See Ghosh, Eashan, "Fundamental Errors in Fundamental Places: A Case for Setting Aside the Delhi University Photocopying Judgment," *N.U.J.S. L. Rev.* (2016) 9:1,2.

312 See Singh, Rocky Soibam, "Publishers Lose Copyright Case Against DU's Photocopy Shop," *Hindustan Times* (16 September 2016), available at http://www.hindustantimes.com/delhi-news/publishers-lose-copyright-case-against-du-s-photocopy-shop/story-Yly8FJ1mNjf71snIL8tpvO.html.

313 *Id.*

314 See Okediji, Ruth, "Toward an International Fair Use Doctrine," *Colum. J. Transnatl. L.* (2000), 39:75,160.

315 See WCT, *supra* note 52. But see Michael Geist, *The Canadian Copyright Story: How Canada Improbably Became the World Leader on User's Rights in Copyright Law*, in Ruth L. Okediji, ed., *Copyright Law in the Age of Limitations and Exceptions*,169 (Oxford University Press, 2017) (describing the Canadian experience).

316 For a leading account of justifications for a user rights approach, see Niva Elkin-Koren, "Copyright in a Digital Ecosystem: A User-Rights Approach", in in Ruth L. Okediji, ed., *Copyright Law in the Age of Limitations and Exceptions*, 132 (Oxford University Press, 2017).

317 See Hughes, *supra* note 244 at 247-8 ("[T]his is also where the ideological battle intensifies: low protection activists want to both promote fair use and to enshrine the most flexible interpretation of the three step test possible. For them it is imperative to promote interpretations of the three-step test that allow fair use, i.e. a three step test that 'does not prevent ... legislatures from introducing open-ended limitations and exceptions.' Copyright owners, on the other hand, come to the fight with one hand tied behind their back: since they cannot directly attack fair use (a central pillar of US copyright law), they must argue for as restrictive an interpretation of the three-step test as possible that still permits the fair use doctrine, or at least a fair use doctrine with a century of precedential guidance behind it").

318 See e.g. id.; Okediji, *supra* note 315. But see Hughes, *supra* note 244, suggesting an approach to reconciling fair use and the three-step test.

The WCT, which explicitly targeted challenges for copyrighted works in the digital age,[319] does not provide clarity about what uses of protected works may, or should, constitute fair use in the online space. Instead, the WCT enhanced protection for copyright interests vis-à-vis technological protection measures and anti-circumvention provisions.[320] These provisions have achieved notable traction domestically via statutes such as the DMCA,[321] and in bilateral and multilateral trade negotiations.[322] Nonetheless, it remains difficult to know what activities qualify under the zone of permissible, uncompensated use. But according to the Agreed Statements concerning §10, the US fair use doctrine arguably survived the WCT:

> provisions of Article 10 permit Contracting Parties to carry forward and appropriately extend into the digital environment limitations and exceptions in their national laws which have been considered acceptable under the Berne Convention. Similarly, these provisions should be understood to permit Contracting Parties to devise new exceptions and limitations that are appropriate in the digital environment. It is also understood that Article 10(2) neither reduces nor extends the scope of applicability of the limitations and exceptions permitted by the Berne Convention.[323]

The enduring importance of fair uses by technology companies and educational institutions illustrate the vitality of the doctrine for enabling forms of authorship that do not conform to copyright's traditional model of sole authorship. Fair use empowers remixers, commentators, entrepreneurs, large-scale digitisation projects, and other downstream innovators, in addition to fostering more collective models of authorship.[324] Insofar as the obligations of global copyright law may tilt countries to discourage or limit these activities, it impoverishes creative enterprise and digital trade. The digital economy, and the technology underpinning it, foster distinct forms of economic interchange, such as the peer production model of collective authorship.[325] It is essential for copyright to enable these forms of production , rather than to obstruct them. Fair use's flexibility—coupled, on occasion, with imaginative licensing terms[326]—can allow the law to do just that.

In addition to facilitating access to knowledge and conditions that enhance human flourishing, fair use is instrumental to emerging technologies such as machine learning, a data-driven form of AI.[327] Machine learning "trains" algorithms to perform particular tasks by feeding them large datasets of examples.[328] As AI technology increases in sophistication, its applications come to resemble the work of human creators—such as writing natural

319 See WCT, *supra* note 52 ("Recognizing the need to introduce new international rules and clarify the interpretation of certain existing rules in order to provide adequate solutions to the questions raised by new economic, social, cultural and technological developments... ").

320 See WCT, *supra* note 52 at arts. 11–12.

321 Act of Oct. 28, 1998, Pub. L. 105-304, § 101, 112 Stat. 2860.

322 For example, for a description of the US attempts to export DMCA-style anti-circumvention provisions in ACTA, see Geist, Michael, "US Caves on Anti-Circumvention Rules in ACTA" (19 July 2010), available at http://www.michaelgeist.ca/2010/07/us-caves-on-anti-circ-in-acta/.

323 Nonetheless, as I have argued, these Agreed Statements appear to have been intended to protect the US fair use doctrine and provide an authoritative interpretation of TRIPS Article 13. Okediji, *supra* note 315.

324 See e.g. McLeod, Kembrew and DiCola, Peter, "Non-Infringing Uses in Digital Sampling: The Role of Fair Use and the De Minimis Threshold in Sample Clearance Reform," *Deakin L. Rev.* (2012), 17:321,324–7 (discussing the role of fair use in facilitating sample-based music).

325 See generally Benkler, Yochai, "Sharing Nicely: On Shareable Goods and the Emergence of Sharing as a Modality of Economic Production," Yale L. J. (2004), 114:273; Benkler, Yochai, "Coase's Penguin, or, Linux and the Nature of the Firm," *Yale L. J.* (2002), 112:369.

326 Benkler, "Coase's Penguin, or, Linux and the Nature of the Firm," *supra* note 329, at 446.

327 See generally Sobel, Benjamin L.W., "Artificial Intelligence's Fair Use Crisis," *Colum. J. L. Arts* (2017), 41:45.

328 *Id.* at 58–9.

prose or creating works of visual art. Correspondingly, AI training data tend to be copyright-protected, typically reproduced without authorisation.[329] These data may come from large- and small-scale content creators or simply from ordinary internet users.[330] Whether an exception like fair use will excuse this conduct remains to be seen; an exception for commercial AI research seems relatively unlikely in Europe, but it is possible that US courts will extend the doctrine to legitimise the practice. If fair use does cover this activity, then it threatens to redirect wealth from ordinary internet users to the corporations that are training their AI replacements. In contrast, if fair use does not excuse machine learning conducted for expressive purposes, then it will pose a significant obstacle to the burgeoning technology. It is clear from this dilemma that ordinary internet users are now "authors" under copyright law. The exclusive rights this status affords may offer users some leverage against large platforms' efforts to consolidate AI capital. What is most evident is that the binary structure of fair use may not be able to address the issue.[331]

Today, questions of fair use increasingly implicate private intermediaries in lieu of government adjudicators. Legal recognition of technological protection measures, for example, may dramatically alter the scope of the doctrine by allowing private entities to pre-empt fair use by design. In the United States, the DMCA outlaws circumvention of technological protection measures that control access to a work, even in situations where such circumvention does not involve infringement of a copyright owner's exclusive rights.[332] With fair use unavailable as a safety valve, these anti-circumvention provisions allow vendors to limit repair and resale markets, and to obstruct socially beneficial activities such as security research.[333] By codifying infringement in circumvention of access controls per se, independent of any other copyright violations, the law imposes itself in an area in which it has no bearing and, in the process, restricts the salutary functions of copyright.

In other circumstances, today's platform economy installs private parties as the de facto adjudicators of fair use. YouTube, for example, has deployed a proprietary content identification algorithm called Content ID that screens for infringement by checking user-uploaded videos against a database of copyrighted materials.[334] Other platforms, have introduced similar algorithmic gatekeepers.[335] If Content ID detects a match, the program allows rights holders to control the visibility or monetisation of the allegedly offending video.[336] Users can appeal a Content ID claim, but appeals are evaluated by the claimant, rather than by a third party; the entire Content ID process precedes and pre-empts legal notice-and-take-down processes for content removal.[337] Identifying infringement algorithmically, rather

329 *Id.* at 45.

330 *Id.* at 67–72.

331 *Id.* at 96–7.

332 See US Copyright Office, Section 1201 of Title 17 iii (June 2017), available at https://www.copyright.gov/policy/1201/section-1201-full-report.pdf ("The Copyright Office does not propose altering the basic framework of section 1201. The Office believes that the statute's overall structure and scope—including its treatment of circumvention as a stand-alone violation independent of copyright infringement—remain sound").

333 See e.g. Stoltz, Mitch, "Copyright Office Proposes Modest Fixes to DMCA 1201, Leaves Fundamental Flaws Untouched," Electronic Frontier Foundation (28 June 2017), https://www.eff.org/deeplinks/2017/06/copyright-office-proposes-modest-fixes-dmca-1201-leaves-fundamental-flaws.

334 "How Content ID Works," YouTube, https://support.google.com/youtube/answer/2797370?hl=en.

335 Keef, Analisa Tamayo and Ben-Kereth, Lior, "Introducing Rights Manager," Facebook (12 April 2016), https://media.fb.com/2016/04/12/introducing-rights-manager/?utm_content=buffer8f024&utm_medium=social&utm_source=twitter.com&utm_campaign=buffer.

336 *Id.*

337 "Dispute a Content ID Claim," YouTube, https://support.google.com/youtube/answer/2797454; See 17 USC. § 512(c) (describing DMCA notice-and-take-down protocols).

than through case-by-case human review, and with limited options for meaningful appeal, threatens to destroy or distort the fair use defence on online content platforms.[338] Online platforms' self-policing illustrates a situation in which *greater* applicability of copyright law could disempower socially beneficial creation. While they certainly boast efficiency, platforms' policies do not typically hold the same user-centric guarantees as fair use, and nor do platforms or their enforcement algorithms furnish the robust appellate mechanism of a judiciary.[339] Copyright law's public welfare objectives should not be pre-empted by private arrangements on platforms that serve as major information conduits.

338 For an argument that "Content ID has had disastrous consequences for the doctrine of fair use, YouTube itself, and ultimately, the very spirit of copyright law[,]" see Bartholomew, Taylor B., "The Death of Fair Use in Cyberspace: YouTube and the Problem With Content ID," *Duke L. Tech. Rev.* (2015), 13:66; see also Perel, Maayan and Elkin-Koren, Niva, "Accountability in Algorithmic Copyright Enforcement," Stan. Tech. L. Rev. (2016), 19:473.

339 *Id.*

6. MINDING THE GAP BETWEEN COPYRIGHT AND DIGITAL TRADE POLICY

The tension that has emerged at the intersection of various copyright doctrines—such as first sale and fair use—and digital markets highlights a subtle and potentially disruptive shift in the dynamics of economic power exerted online. Three emerging patterns in the global online marketplace, highlighted earlier, require special vigilance to ensure the balance of interests that animate copyright policy is calibrated to secure sustainable and affordable access to digital goods across the globe.

First, with an increased number of copyrighted works failing to transfer ownership, and with private entities on the frontline of policing what constitutes permissible use of protected content, there is a steady, systematic trend towards the displacement of copyright rules for contract rules.[340] Instead of statutory guarantees, rules, and standards achieved through democratic consensus and compromise, the digital platform is steadily becoming an arena in which legal claims are decided in the first instance by corporations, such as internet service providers. Further, norms of online transactions increasingly are granting

> rights holders greater control not only over the pricing and availability of their works but also over the uses consumers can make with their purchases. That control constrains consumer welfare on a number of levels. It prevents consumers from acquiring or reselling works via secondary markets; it impinges on their privacy and limits their opportunities for innovation; and it threatens market efficiency and competition by increasing transaction costs and the risk of consumer lock-in.[341]

Second, multilateral agreements and organisations rarely take an active role in promoting a copyright infrastructure that supports users' rights online. In this absence, the politics of free trade agreements have continued down the untested and hotly debated IP harmonisation experiment inherited from late twentieth-century policymakers. With secretive plurilateral and multilateral trade negotiations displacing public domestic policymaking, the judicial branch may be the only potential platform for human welfare objectives to be vindicated in the face of rules supported by a strong and networked copyright lobby.

Third, online platforms have helped not only to perpetuate but also to augment the systematic power imbalance of copyright interests at the expense of users. Examples of this phenomena abound in the context of the first sale and fair use issues discussed above. For example, shrewd drafting of licence agreements, or end-user licence agreements, increasingly offer consumers the appearance of ownership, while at the same time limiting how digital goods may be used or transferred. Likewise, the structure of notice-and-take-down statutes has shifted the question of fair use to internet service providers or private persons with little to no experience in the sensitive balancing inquiry demanded by domestic laws.

Collectively, the entrenchment of these power dynamics has the potential to move the regulation of digital trade away from consumers and human welfare concerns towards copyright owners and industries at precisely the moment in which consumer engagement is critical for sustaining global markets for digital goods. This state of affairs has a potentially destabilising effect on business innovation and digital platform investment. Moreover, by failing to implement rules that securely protect the online user,

340 Perzanowski and Schultz, *supra* note 163 at 891.

341 *Id.*

digital markets may experience dampened innovation and creative gains, the exact opposite of what copyright ostensibly is designed to promote. Governments must commit to global norms that are carefully crafted to ensure a level playing field and freedom domestically to leverage copyright and information policies to promote human welfare goals. In short, a reconfiguration of the public welfare is needed. The following ideas offer some initial steps in this direction.

6.1 Copyright Law and Competitive Conduct

Policymakers must reconceptualise copyright as neither a codification of authors' rights nor a lever for the creation of a professional creative class. Instead, copyright and information policy in the digital economy should be guided by core principles that regulate unfair conduct, promote flexibility in national economic planning, and encourage norms that facilitate the production of knowledge goods and promote access to the global marketplace on competitive, rather than monopolistic, terms. Thus far, copyright has increasingly become a hindrance to these values, rather than a help, leaving the governance of the information ecosystem to private actors aided by continuing industry consolidation.

6.2 Progressive Disharmonisation

Aided by software, exhaustion, and limitations and exceptions to copyright, the Fourth Industrial Revolution was catalysed in the sectors least regulated by harmonised international copyright frameworks, with the continuingly unregulated technology industry as a primary example. New platforms for creating and consuming information have left the political, the cultural, and the innovative inextricably intertwined as the innovation economy pushes the changes that force us to re-examine some elements of IP rules. Accordingly, today's copyright should enable—even push—countries to pursue, within the boundaries of competitive fairness, policies that prioritise creativity, engagement, and access as crucial values underpinning a competitive and equitable creative economy. Should these become agreed-upon policy priorities, these considerations impel a pivot away from traditional harmonisation efforts, and towards the progressive disharmonisation of copyright regimes. Copyright's orthotic sympathy for the human author must translate into meaningful commitment to improving the capacity of national governments to facilitate welfare gains among consumers, and between developed and developing countries. In short, progressive disharmonisation should become a conscious design feature of a new global copyright framework.

6.3 Rethinking Institutional Arrangements

The intimate relationship between content regulation and the regulation of technology platforms profoundly affects the extent to which new technologies will shape competitive conditions and advance social progress. Political and social institutions will matter a great deal in the array of policy choices available to countries, particularly for potential strategies for regulating technology platforms. The International Telecommunication Union (ITU) is the specialised agency of the United Nations responsible for information communication technology (ICT). Although WIPO has been singularly responsible for international copyright norm-setting, the ITU's role should be significant in the design of the global regulatory framework for the digital economy. Policymakers should consider the current institutional arrangements and evaluate whether greater coordinated activities and new allocations of technical expertise to ITU might yield social norms that fuel a reorganisation of copyright's role in digital trade. Institutional interventions by the ITU in the copyright framework, in coordination with WIPO's activities, could produce more effective copyright norms for the digital economy and, in turn, elicit greater alignment between global information policy and global copyright law. At the same time, norm-setting activities in WIPO must increasingly account for the regulation of content platforms and, in turn, how those platforms react and interact with the copyright regime. Such organisational

innovation could offer a radical departure from the pathological norm-setting processes that have thus far ineffectively dominated copyright law and generate new directions for establishing a consumer-oriented framework for trade in knowledge goods.

7. CONCLUSION

Throughout the twentieth century, firms were organised around rules that defined ownership of ideas, expression, and other forms of knowledge almost entirely in exclusive terms.[342] IP rules were designed for, and matured in, an industrial age characterised by hierarchical systems of production that facilitated competitive cross-border trade in goods and services.[343] The international legal framework for copyright established in the late nineteenth century was consolidated and further strengthened in the TRIPS Agreement to support this approach to the creative enterprise. As such, the Agreement's heftier rules reconfigured the terms of access to knowledge goods[344] in ways that increased the technological gap between the global south and the global north[345] and resulted in wealth transfers to owners and net exporters of technology, with a corresponding welfare decrease in economic, social, and cultural terms in and among the nations of the world.

The new technologies unfolding in global markets may produce the same outcomes, despite how beneficial those technologies will prove to the creative process and the promise of enhanced productivity. Vintage IP rules memorialised in international treaties reflect, intentionally or not, certain convictions about the social and economic organisation of society. But the social and economic outcomes endorsed, if not exacerbated, by current IP regimes are not inevitable. New technological platforms could offer a fundamentally different set of options to avoid or even offset the costs of previous technological advances. Small nudges in copyright doctrine, such as suggested in this paper, may appease claims of structural inequities that perpetuate divisions across and within all societies.

Copyright principles will increasingly manifest themselves disharmoniously from nation to nation as a result of unpredictable (and uneven) technological advances. The disharmony and experimentation propelled by new technologies that markets adopt is a good thing. Scholars have long argued that legitimate flexibility in copyright regimes and some level of norm variation are essential to facilitate and distribute dynamic welfare gains among consumers globally. The human development concerns occasioned by new technologies have further justified this view and heightened the stakes involved in copyright's role in the digital trade economy. The best way to reconfigure the terms of copyright's engagement with digital trade is to enable a global copyright framework that sufficiently cultivates and supports the doctrinal disharmony necessary for continued competition, innovation, and user creativity in a deeply interconnected digital society and global economy.

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342 See Gervais, Daniel J., "The Internationalization of Intellectual Property: New Challenges from the Very Old and the Very New," *Fordham Intell. Prop. Media Ent. L. J.* (2002), 12:929,935–48.

343 *Id.*

344 See e.g. Okediji, Ruth L., "Public Welfare and the Role of the WTO: Reconsidering the TRIPS Agreement," *Emory Int. L. Rev.* (2003), 17:819,822 (arguing that the "outcomes of TRIPS disputes suggest that exposure of a domestic public policy to the DSU process can have the perverse result of calcifying the pervasive ideology of maximalist property rights on a global scale, thus limiting policy spaces within which countries may advance specific visions of welfare in national intellectual property laws").

345 *Id.* at 890.

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