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The shifting contours of trade in knowledge: The new "trade-related aspects" of intellectual property

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Staff Working Paper ERSD-2020-14 **1 December 2020**

World Trade Organization

Economic Research and Statistics Division

THE SHIFTING CONTOURS OF TRADE IN KNOWLEDGE: THE NEW 'TRADE-RELATED ASPECTS' OF INTELLECTUAL PROPERTY

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Manuscript date: 9 August 2020

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[*] Contribution to the forthcoming volume Antony Taubman and Jayashree Watal (eds.), *Trade in Knowledge*, Cambridge University Press, 2020

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The Shifting Contours of Trade in Knowledge: The New 'Trade-Related Aspects' of Intellectual Property

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Manuscript Date: 9 August 2020

Abstract

This paper charts the evolution and diversification of trade in knowledge that has taken place in the quarter-century since the WTO TRIPS Agreement came into force. Entirely new markets have come into being, potentially redefining the very character of 'trade'. The disruptive effect of digital technology has led to much of the content - formerly conceived of as 'added value' embedded in physical carrier media, traded and measured as 'goods' – can be traded in the form of specific licences that use IP rights covering the content that is increasingly accessed online in digital form. These new forms of exchange in valuable intangible content confront fundamental assumptions about the nature of trade and its interaction with the IP system, forcing a rethink of what constitutes the 'trade-related aspects' of intellectual property. The issues examined include the principle of territoriality of IP rights and the segmentation of markets according to national jurisdictions; the structuring of cross-border commercial exchanges into the two discrete categories of 'goods' and 'services'; the emerging disparity in regional trade agreements between provisions on digital IP standards and on digital products and e-commerce; and the significance of IP rights being treated as assets in investment treaties. Whatever formal or legal overlay is applied to these new trading arrangements – it is essential to understand that this is now trade in IP licences as such, rather than trade in goods that have an IP component as an adjunct or ancillary element. TRIPS came about at a time when economic growth theory incorporated intangible knowledge as an endogenous factor, rather than maintaining it as exogenous to models of growth. Trade policy must similarly work to incorporate an understanding of the trade in IP licences itself within cross-border commercial exchanges as an integral element of international trading relations: sale and licensing of IP rights can then be considered 'endogenous' to trade. This is essential for an accurate empirical picture of trade relations today, given the economic significance both of dispersed global value chains and of trade in 'pure' IP content as such particularly in the creative sectors.

Keywords: intellectual property, trade in knowledge, digital trade, TRIPS Agreement.

JEL classifications: F13, K10, K33, O30, O34, I18

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1. OVERVIEW: THE NEW 'TRADE-RELATED ASPECTS' OF IP

Growing recognition of the economic significance of the intellectual property (IP) system and of the knowledge component of trade led negotiators, a generation ago, to formulate the WTO Agreement on Trade-Related Aspects of Intellectual Property Rights ('TRIPS')[1]. TRIPS ostensibly addressed the 'trade-related aspects' of IP rights and integrated the IP system into the framework of multilateral trade law, but it was concluded before the effects were felt of the impact of digital technologies on how knowledge-rich products – tangible and intangible – are traded and disseminated. In the quarter-century since TRIPS came into force, trade in knowledge –the tangible and intangible ways valuable content is disseminated through commercial channels – has dramatically evolved and diversified. Entirely new markets have come into being for valuable content defined and protected by IP, and IP licences governing knowledge constitute one form of linkage in dispersed value chains. Consequently, the 'trade-related aspects' of IP have evolved and diversified, to the point that trade in IP rights as such is commonplace and defines major consumer markets for creative content.

The emerging trade in IP rights as such and the digital products defined and traded through IP rights suggests that the very character of what is conceived of as 'trade' needs reconsideration. For instance, from a trade perspective, valuable content (such as musical works, software or literary works) was earlier conceived as 'added value' embedded in physical carrier media, the physical objects that were traded and counted as 'goods'. Trade in music, software or literature would be measured through the physical transfer of such goods, and transactions defined by the transfer of ownership over such physical objects. The disruptive effect of digital technology means that much of this content is now traded digitally. The individual transactions that make up the trade increasingly take the form not of transfer of ownership of carrier media, but of specific licences that combine contractual undertakings with limited licences to use IP rights covering the traded content. Established notions of ownership and property are under strain. Trade in content as such, valued for its own sake, therefore increasingly supersedes trade in the physical carrier media that had earlier served as a proxy for trade in valuable intangible goods such as musical and literary works, software and games. These new markets and new forms of exchange in valuable intangible content confront fundamental assumptions about the nature of trade and its interaction with the IP system, forcing a rethink of what constitutes the 'trade-related aspects' of IP.

This dynamic context, and the disruptive effect of technological change, have implications for the principle of territoriality of IP rights and the segmentation of IP markets according to national jurisdiction; the structuring of cross-border commercial exchanges into the two discrete categories of 'goods' and 'services'; the emerging disparity in regional trade agreements between digital IP standards and provisions on digital products and e-commerce; and the significance of IP rights also being treated as assets in investment treaties.

Whatever formal or legal overlay is applied to these new trading arrangements, it is essential to build an understanding of their character, in part, as trade in IP licences as such, rather than viewing the IP component as an adjunct, ancillary or extraneous element. Just at the time TRIPS was being negotiated, Romer and others demonstrated the need for economic growth theory to incorporate intangible knowledge as an endogenous factor. Today, trade policy must similarly work to incorporate an understanding of the IP dimension of cross-border commercial exchanges as an integral element of trading relations – and ideally count them more comprehensively and effectively in the trade balance statistics that can influence trade policy choices. This means treating the exchange and licensing of IP rights systematically and effectively as 'endogenous' to trade. This shift in framing the 'trade-related aspects' of IP – indeed, considering the IP-related aspects of trade - is essential for an accurate empirical picture of trade relations today, given the economic significance both of dispersed global value chains and of trade in 'pure' IP content as such particularly in the creative sectors. Such a move need not challenge formal positions as to the categorisation of trade in digital products. Instead, it may be more productive to accept the diverse range of interactions between the IP system and trade and build an understanding on empirical observation of diverse phenomena, rather than *a priori* formal categorisation.

[1] Agreement on Trade-Related Aspects of Intellectual Property Rights, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, 1869 U.N.T.S. 299, 33 I.L.M. 1197 (1994).

2. 'OLD TOWN ROAD' AND NEW TRADE ROUTES

The song 'Old Town Road', by the rapper Lil Nas X (Montero Hill), set new sales records in 2019, even as it resisted definition within the music business's established categories. For an unprecedented 19 weeks, the song topped the Billboard Hot 100 , the principal music industry listing of currently popular recordings in the United States – the original Billboard magazine 'hit parade' dating back to the 1930s. The Recording Industry Association of America (RIAA) later certified the song as 'diamond', representing confirmed sales of 10 million units: it reached this milestone in record time.[2] And the song defied conventional musical genres, blending elements of hip hop, trap and country music. 'Old Town Road' was initially listed on Billboard's Hot 100 and on its R&B/hiphop chart, as well as on its country music chart, but was reportedly removed from the latter on the grounds that it "does not embrace enough elements of today's country music to chart in its current version," a decision that sparked controversy, while it remained on the rap charts.[3] At the time, the songwriter argued that the "song is country trap. It's not one, it's not the other. It's both. It should be on both [charts]."[4]

The song was built on the foundation of a beat created by Kiowa Roukema (under the handle YoungKio), a Dutch musician. He had encountered – when browsing YouTube algorithmic recommendations - the instrumental track '34 Ghosts IV' produced by Nine Inch Nails (composed by Trent Reznor and Atticus Ross). He combined a trap rhythm with a banjo riff sampled from the Nine Inch Nails track. In turn, Mr Hill obtained this beat from *BeatStars*, an on-line market for instrumental audio clips to be used by recording artists and songwriters. While he was reported to have 'purchased' or 'bought' the beat, in fact he took out a standard, non-exclusive licence – a 'basic lease' for USD30, which gave limited rights to use the clip for recording music that was capped by permitted number of copies, and limited rights to audio streams and broadcasting rights of the resulting musical work. BeatStars is an international marketplace for IP licences, the territory of application of which is defined as 'the world.' It reportedly hosts over 1.5 million beats, audio clips available for licensing, that are posted by music producers from around 160 countries, and has paid over USD50mn to producers such as Mr Roukema – although it is very unlikely that these payments will be counted as exports of goods or services from the countries in which they work. The Nine Inch Nails track had been released under a Creative Commons licence, with a positive encouragement for the material to be used for non-commercial purposes. However, the right to use the sample in Old Town Road was only cleared retrospectively through a telephone call. The original musical composition was credited to Hill and Roukema as well as to Trent Reznor and Atticus Ross: of the four credited songwriters, only the last two had actually met, and the first two were separated by an ocean.

Mr Hill initially released the song independently (signing to an established record label, Columbia, only after its breakout success) and promoted it through extensive use of social media, including the newly popular avenue of TikTok. He encouraged its use in video clips by other users, and gained attention to the track through a variety of internet memes. The groundswell of interest thus generated led to its popularity in more conventional settings, in particular those used by Billboard and other industry sources to measure success. The Billboard Hot 100 measure includes traditional retail sales of physical media (such as CDs), as well as digital downloads, streaming and on-demand access.[5]

'Old Town Road' exemplifies how digital technology has transformed the music industry in particular in the period since the WTO TRIPS Agreement was concluded in 1994, some five years before the song's creator and performer was born. This transformation is evident in terms of how the song was composed and disseminated, the interplay between creators' rights and user rights as its components came together, the geographically dispersed cluster of rights over the song's ingredients (the very process of its composition and production resembling a global value chain), the significance of digital platforms including a global marketplace for IP licences unsupported by physical carrier media, the song's non-conformity with established genres, and even the manner of measuring its success. Taken together, these facets of the one case offer illuminating insights into the impact of

[2] Rania Aniftos, 'Lil Nas X's 'Old Town Road' Is the Fastest Song in History to Be Certified Diamond by the RIAA,' *Billboard*, October 22, 2019

[3] Hubert Adjei-Kontoh, 'Lil Nas' song was removed from Billboard for not being 'country' enough. But who gets to decide categories?', *The Guardian*, April 2, 2019

[4] Andrew Chow, 'Lil Nas X Talks 'Old Town Road' and the Billboard Controversy,' https://time.com/5561466/lil-nas-x-old-town-road-billboard/

[5] https://www.billboard.com/p/billboard-charts-legend

digital disruption on this sector. It demonstrates how entirely new forms of trading in creative content are supplanting traditional business models and challenging traditional genres.

'Old Town Road' exemplifies trends that can be said to be transforming the very nature of trade, and the linkages between the IP system and international trade:

- The development of on-line commercial markets for licences in IP content as such, enabling seamless trading in a global space, and transforming the notion of 'trade-related aspects' of IP rights;
- The diversification and informality of the means of creation, dissemination, reuse and consumption of digital content;
- The multiple uses of the internet as a packet-switched network, and the transmission of packets of data structured by the internet protocol (TCP/IP), for diverse creative, cultural, social and commercial purposes, and the correspondingly diverse legal statuses of those packets of data, which may variously be construed as in the public domain, subject to fair use or user rights, or bound by contractual obligations and IP rights;
- The blurring of boundaries: between producer and user of creative content, between established genres, between distinct distribution channels, and between the distinct national jurisdictions under which IP rights are recognised and enforced; and
- The challenge of tracking and measuring international commercial transactions that entail the licensing of IP content no longer embedded in the physical carrier media – discs, tapes, printed publications such as sheet music – that once could comprise the totality of creative content traded internationally.

3. FROM TRADE IN ATOMS …

3.1 GATT and the 'trade in goods' paradigm

The multilateral trade agreements that came into force on the establishment of the WTO in 1995 were negotiated and concluded in an effectively pre-internet age, with scant consideration of how digital technologies were likely to reshape not only the directions and composition of trade, but even transform the very legal and economic character of commercial transactions that constitute trade.

The interaction between trade and the IP system, and the general acceptance of the significance of the intangible component of trade, had only slowly taken root in a multilateral system of trade rules that originally focused on trade in physical goods – informally, 'things you could drop on your foot'. In 1947, the General Agreement on Tariffs and Trade (the GATT) established a rule, essentially, of non-interference and of non-discrimination between trade law and IP law: the IP system was held at arm's length. Thus, GATT Article XX, on general exceptions, accepted that contracting parties may choose to protect IP within their domestic systems, without requiring this. At the same time, it provided that IP protection should not be a disguised restriction on trade, and should not discriminate against imported goods (the GATT being a trade-in-goods agreement, discrimination was construed in terms of goods and not of persons): in effect, protect IP if you wish, but do no harm to trade in physical goods. GATT jurisprudence confirmed that measures to enforce IP at the border could fall foul of the principle of non-discrimination, effectively setting limits on the impact of IP measures on trade in goods.[6]

One strand of IP – loosely, the unfair competition/geographical indication (GI) nexus – found some, tentative recognition in the original GATT text. The obligation under Article IX.6 to cooperate to prevent the use of trade names that would "misrepresent the true origin of a product, to the detriment of such distinctive regional or geographical names of products of the territory of a contracting party as are protected by its legislation" recalls the trade-relatedness of geographical indications and the mechanism for communicating names protected under domestic law points towards a later mandate to negotiate a multilateral GI register, but there are no obligations positively to protect such terms.

Over time, trade policy began to register the relevance of IP issues more widely. Thus a GATT inventory of non-tariff barriers to trade compiled in 1968 included a notification by the United Kingdom of Italy's local working requirements for patents (invoking the Paris Convention for the

[6] See United States - Section 337 of the Tariff Act of 1930, Report by the Panel adopted on 7 November 1989, L/6439 - 36S/345

Protection of Industrial Property), and of the manufacturing clause in US copyright law.[7] A more sustained and structural shift to recognising the intangible value that IP embeds in traded goods can be traced more concretely to past GATT work on counterfeit trade beginning in the 1970s. The United States sought to introduce a requirement to act against trade in counterfeit goods within the GATT Tokyo Round negotiations: an early proposal was headed 'Agreement on the Sanctions to be Imposed Upon the Importation of Counterfeit Merchandise'[8], and dealt with international trade in *articles* that bore a spurious trademark or made in violation of copyright. A subsequent version, submitted jointly with Canada, the European Community and Japan, proposed an 'Agreement on Measures to Discourage the Importation of Counterfeit Goods,'[9] which only addressed international trade in imported goods bearing a false representation of a trademark. These proposals were unsuccessful in that they failed to produce an immediate negotiating outcome, but they helped shape the negotiating mandate for the subsequent Uruguay Round negotiations - the Punta del Este Declaration of 20 September 1986. This negotiating mandate – within the broader category of 'trade in goods' - referred to "[t]rade-related aspects of intellectual property rights, including trade in counterfeit goods" and established the negotiating objective of developing "a multilateral framework of principles, rules and disciplines dealing with international trade in counterfeit goods". Hence, for historical and practical reasons, the essential notion of IP and international trade that the TRIPS mandate addressed was still centred on the idea that IP was embedded in physical goods, and that the infringing trade to be suppressed was trade in infringing goods.

This practical assumption that international trade relating to IP was embedded in physical goods finds a strong echo in the earlier multilateral conventions on IP administered by the World Intellectual Property Organization (WIPO). Thus, the Paris Convention deals with 'articles', 'products', and 'goods' as either embodiments or infringements of IP. Until its revision in 1958, Paris had not recognized service marks at all, in line with the past understanding in many countries that trademarks were reserved for goods only. What was arguably the first truly 'trade-related' agreement on IP - the Madrid Agreement for the Repression of False or Deceptive Indications of Source on Goods of 1891 – squarely addressed trade in goods in a manner that has consonance with the one positive obligation related to IP in the original GATT, the requirement under Article IX.6 to cooperate 'with a view to preventing the use of trade names in such manner as to misrepresent the true origin of a product'.

In this 'analogue' age, it was, indeed, the case that goods served as proxies especially for consumer access to the content protected and defined by IP rights. Hence, for most consumers, music, books, journals, cinematic works, and even consumer software and games, were traded internationally almost exclusively on physical carrier media – optical and vinyl discs, recorded tape, film stock, newsprint, bound volumes, sheet music, and so on. And guidelines for measuring international trade in goods recognize such material as traded goods: "[a]s a general guideline, media, whether or not recorded, is included in international merchandise trade statistics at its full transaction value, except for media used for carrying customized software or software written for a specific client or originals of any nature, which should in principle be excluded."[10] One exception concerns international 'newspapers and periodicals sent under direct subscription'[11] – though they entailed the passage of valuable physical goods across borders, these were counted as trade in services, the physical shipment of the publications being conceptually subordinate to the provision of a subscription service.

Commercial transactions defined by the exchange of ownership of these physical things – these bundles of atoms – therefore served as proxies for the acquisition of access to valued intangible content (such as music, literature, films, and software). The reliance on physical carrier media as the means of dissemination meant that international trade in musical and literary works could readily be tracked and relatively accurate trade statistics maintained, by monitoring the quantity and value of physical media that passed through customs procedures on a country's boundary. Hence recorded media (recorded discs, tapes and filmstock, published books, newspapers) have been counted and valued separately from blank media (blank discs, tape and filmstock, paper, newsprint); their 'full

[7] GATT documents COM.IND/4 (30 August 1968) and COM.IND/4/Corr.1 (26 September 1968)

[8] GATT document MTN/NTM/W/204, Multilateral Trade Negotiations – Group "Non-Tariff Measures" – Sub-Group "Customs Matters" – Commercial Counterfeiting – 11 December 1978.

[9] GATT document L/5382, Agreement on Measures to Discourage the Importation of Counterfeit Goods, 18 October 1982

[10] United Nations, International Merchandise Trade Statistics: Concepts and Definitions 2010 (IMTS 2010), New York, 2010,at 15.

[11] *ibid*, at 21

transactional value' incorporates the licence acquired to use the recorded content, normally limited to certain private uses. Broadcasting and other forms of wired and wireless transmission – on domestic and cross-border networks - also provided the public -with access to some categories of material, but not in a form susceptible to individual transactions concerning ownership of a right to continued access to a specific work.[12]

In categorising trade in goods for customs valuation and statistics, the Harmonized Commodity Description and Coding Systems (HS) classification of traded goods distinguishes between recorded and unrecorded optical media, magnetic media, and photographic media. Clear differences in value are apparent depending on whether blank or recorded media are traded. Thus, in 2018, a global total of 13.8 bn imports of recorded optical discs (HS code 852349) was reported, as against 2.1bn imports of unrecorded (blank) optical discs (HS code 852341). The contrasting two patterns of exports (see figures 1 and 2) illustrate a kind of 'value chain' in international trade, as intangible content is added to the blank discs, greatly enhancing their value, with the export profile of the more valuable recorded media being dominated by developed countries.

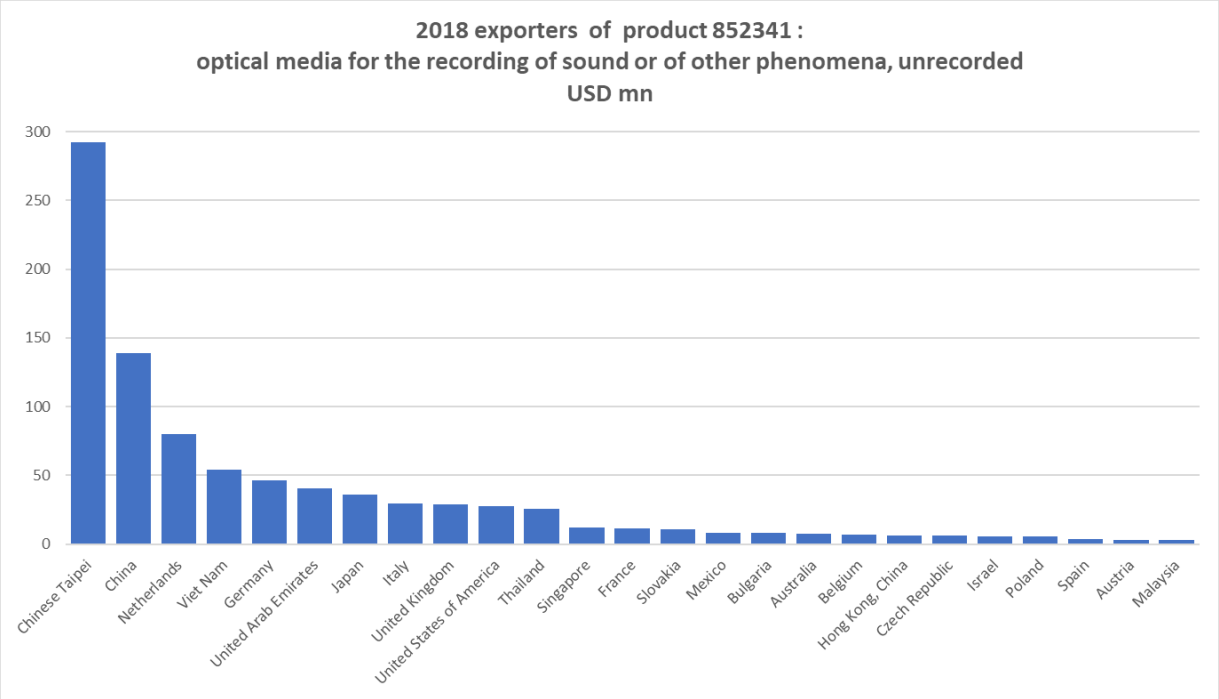

Figure 1 (Source: ITC Trade Map)

[12] The lack of such a right was a factor behind the negotiation of what were termed the 'WIPO internet treaties' in 1996, notably producing a new right of distribution – see section 4.4 infra.

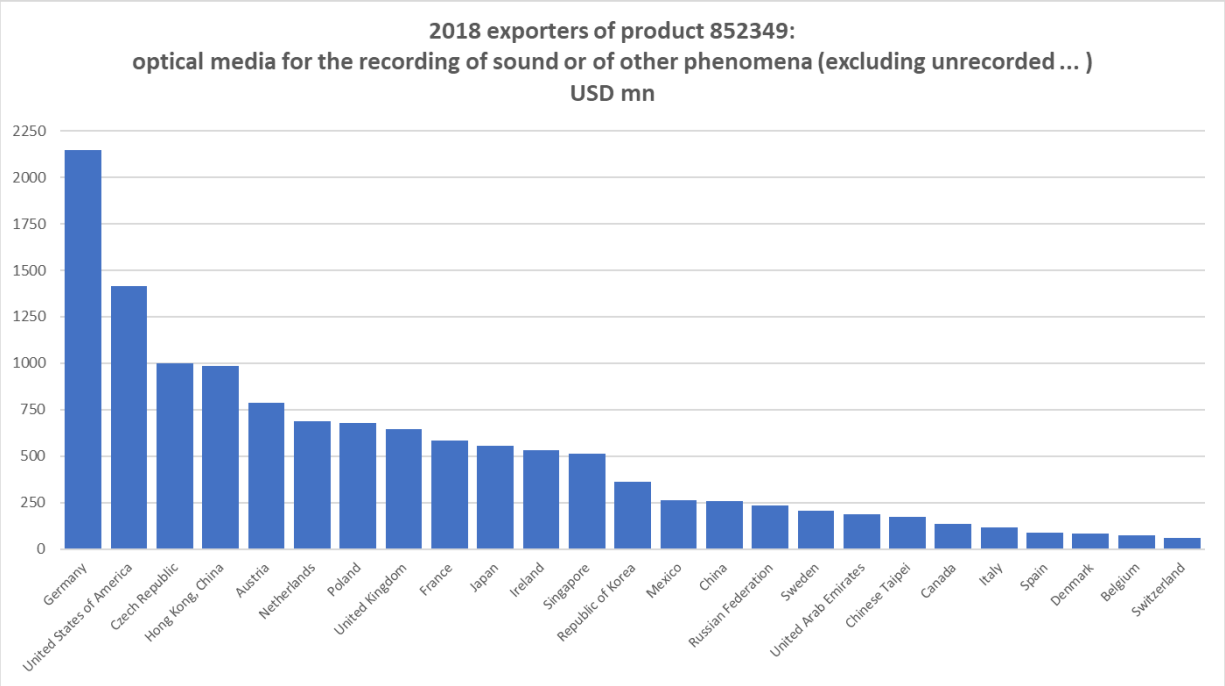

Figure 2 (Source: ITC Trade Map)

3.2 Historical legal questions: what are you purchasing?

Prefiguring the manner in which we need today to consider the implications of digital disruption for trade in knowledge products such as musical works, earlier technological changes – such as the development of soundrecording and broadcasting technologies - led to similar issues concerning the very character of trade in copyright works. Hence, this question arose at a time when radio technology made it possible for a sound recording – then normally distributed on gramophone records – to be widely broadcast to the public beyond the original, private, context in which such records had been played. Until the advent of broadcasting, the only ways of gaining access to a musical performance were either being physically present at the performance or by means of access to a physical object, the recorded disc. Hence the question arose, with resonance still today: if you do buy a recorded physical carrier medium, such as a gramophone record or an optical disc, what are you actually purchasing? What is the very nature of that transaction? Is it essentially the purchase of a physical thing, a 'chattel' in the legal jargon, something that you have property rights over and can sell and pass on to others? Is it the purchase of a rather limited private right to use the content, to use the intangible content? Is it a combination of the two? And how is the nature of this transaction affected by the introduction of new technologies for disseminating content?

In an earlier age, when radio broadcasting was a disruptive new technology, a US court developed an intriguing way of answering these questions. In the 1930s, the musician Fred Waring, bandleader of the Pennsylvanians, ran into difficulty enforcing an agreement with his record company, the Victor Talking Machine Company. His band's recorded music was licensed for gramophone production provided the ensuing records were labelled "not licensed for radio broadcast". The broadcast market was a separate, valuable source of income. The radio station WDAS purchased the disc and broadcast these recordings contrary to the asserted licence conditions. This led the court to construe the significance of technological disruption for rights and entitlements linked to intangible content:

> The problems involved in this case have never before been presented to an American or an English court. They challenge the vaunted genius of the law to adapt itself to new social and industrial conditions and to the progress of science and invention. For the first time in history human action can be photographed and visually re-portrayed by the motion picture. Sound can now be mechanically captured and reproduced not only by means of the phonograph for an audience physically present, but, through broadcasting, for practically all the world as simultaneous auditors. Just as the birth of the printing press made it necessary for equity to

> inaugurate a protection for literary and intellectual property, so these latter-day inventions make demands upon the creative and ever-evolving energy of equity to extend that protection so as adequately to do justice under current conditions of life.[13]

In this particular case, the challenge of technological disruption led the court to conclude that the licence restricting the use of the gramophone record was an "equitable servitude"[14] on a chattel. The physical disc was sold by the gramophone company to a radio station. Waring himself was not a party to this transaction and could not interfere with the sale of the disc as such. Even so, he was entitled as a matter of equity to enforce his interest in the recorded content contained on the disc and could restrain certain uses of the disc, despite the separate transfer of ownership of the disc as personal property (the 'chattel').

> [No] valid reason exists why the restriction attached to the manufacture and sale of the records in this case should not be enforced in equity. ... in a sense plaintiff was not imposing a restriction in connection with a sale by him of a chattel. The chattel here consisted of the phonograph record. This the plaintiff never owned. What he granted was merely the incorporeal privilege of reproducing the rendition of the song indented upon the chattel sold by the Talking Machine Co. The reservation or restriction imposed by him was to limit the extent of this privilege. The title to the physical substance and the right to the use of literary or artistic property which may be printed upon or embodied in it are entirely distinct and independent of each other.[15]

The court then upheld the complaint on the basis that the radio station's use of the recording was an act of unfair competition. This somewhat experimental construction of the law did not find more general or lasting acceptance, and the law evolved to recognise a growing bundle of distinct IP rights applicable to recordings and performances as such.[16] The case is cited here, nonetheless, as an instructive historical insight into the continuing challenges, in a changing technological environment, of applying legal principles that seem better adapted to deal with property interests in tangible goods, as against claims or interests relating to intangible content. Defining and articulating the limits of such claims over embedded content when distributed by means of the sale of a physical thing, a chattel, remains a task for the policymaker or the courts confronted with today's new technological possibilities.

3.3 Exhaustion of IP rights and the scope of markets

Indeed, considering the trade dimension in particular, in the contemporary commercial and legal environment, the relationship between the physical carrier medium and the rights governing the content it carries has increasing significance for determining the extent to which goods carrying IP-protected content can be traded, domestically and across borders. Key to the creation and structure of such borderless markets for IP content is the question of exhaustion of IP rights, particularly copyright. The term 'exhaustion' refers to the generally accepted principle in IP law that a right owner's exclusive right to control the distribution of a protected item lapses after the first act of distribution, when the right holder is assumed to have received a fair commercial return. On an international level, given the generally jurisdictionally defined and bound character of IPRs, it refers to the extent to which distinct authorization is required for IP-protected items to cross borders and to pass to distinct IP jurisdictions. The scope of exhaustion of rights forms the central pivot of the interaction between domestic jurisdictions and global markets for products defined or governed by IP rights.

The TRIPS negotiators were unable to bridge between contrasting views that exhaustion should apply nationally (meaning that an IP-protected product can be further sold within the same jurisdiction, but could not be imported even if legitimately acquired with the IP owner's consent in a foreign market), or internationally (meaning that once the IP-protected item, once sold, can be

[13] Fred Waring v WDAS Station Inc. 194 A. 631 (Pa. 1937) 433.
[14] Chafee, Equitable Servitudes on Chattels, 41 Harvard Law Review 945
[15] Waring v WDAS, note 13 *supra* at 447.
[16] The need for ideas of equity and balance to adjust to such technological impact is discussed in Antony Taubman, *Nobility of Interpretation: Equity, Retrospectivity, and Collectivity in Implementing New Norms for Performers' Rights*, 12 J. Intell. Prop. L. 351 (2005). At: https://digitalcommons.law.uga.edu/jipl/vol12/iss2/2

imported into other jurisdictions even if the IP right is separately in force there).[17] Thus this question was left open under TRIPS for national authorities to regulate (provided non-discrimination is respected), a matter confirmed in the 2001 Doha Declaration on the TRIPS Agreement and Public Health.[18] The central question, considering the policy dimension of exhaustion, is the extent to which the existence of jurisdictional boundaries constrains the free flow of IP-protected material, and to what extent the holder of an IP right should be able to bar its flow across borders.

The approach taken to exhaustion of IP rights embedded in tangible goods will determine whether there can be, effectively, a single global market for physical goods carrying IP-protected material, superseding distinct domestic markets defined by IP rights granted under national legal systems. In turn, the contours of such markets can depend on the character of the underlying transaction when a physical good is purchased that carries content protected by IP rights. Two recent US Supreme Court decisions have considered this question when determining the effective reach of IPRs across jurisdictions when goods are traded internationally, and thus the degree to which IPRs can shape international trade flows for knowledge content defined and protected as IP.

The international dimension of the *Kirtsaeng*[19] case concerned whether textbooks lawfully sold abroad with the consent of the copyright owner (at a lower price than the domestic versions) could be imported and sold in the US. The domestic copyright law of the US provides that 'the owner of a particular copy or phonorecord lawfully made under this title, or any person authorized by such owner, is entitled, without the authority of the copyright owner, to sell or otherwise dispose of the possession of that copy or phonorecord.'[20] This provision codifies the 'first sale' doctrine under US law, under which a copyright holder is not entitled to restrain further sales once a first sale has been made. The international aspect of the case therefore hinged on whether the phrase 'lawfully made under this title' was limited in reference to copies made within the US, or was not geographically restricted; the majority held that it was 'nongeographical', and that the domestic statute defined a standard of lawfulness, while not requiring a copy to be made in the United States to benefit from this exhaustion of the distribution right. A majority found that physical books containing copyright works, imported into the United States in the so-called 'grey market', were not infringements of US copyright law and could thus legitimately enter the domestic market.

A host of policy questions lie behind this seemingly narrow question. Notably, from the point of view of the interplay between IPRs and trade law and policy, the majority held that the copyright statute aimed at a principle of 'equal treatment' between foreign and domestically produced works: "the 'equal treatment' principle is difficult to square with a geographical interpretation that would grant an American copyright holder permanent control over the American distribution chain in respect to copies printed abroad but not those printed in America."[21] The majority decision draws an analogy between the purchaser's rights over the imported copyright-protected textbook, and ownership of a 'chattel' (a tangible item of property), rather than viewing the physical book as being essentially a carrier medium for protected content and licensed IP and thus giving primacy to the IP dimension of the original transaction. In the *Waring* case noted above, a copyright restriction on radio broadcast of a sound recording was construed as an 'equitable servitude on a chattel'.[22] Such a construction sees the essential nature of the transaction as transfer of ownership of the physical object, while enjoyment of the possession of a physical copy of the recording was subject to continuing liability to the originator of the sound recording.[23]

Dissenting, Justice Ginsberg argued that 'lawfully made under this title' refers to 'instances in which a copy's creation is governed by, and conducted in compliance with, Title 17 of the U. S. Code.' She argues that, since US copyright law is not extraterritorial, it is anomalous 'to speak of particular

[17] TRIPS Agreement, Article 6, above note 1. For an account on the negotiation of this issue, see David Fitzpatrick, 'Negotiating for Hong Kong,' in Watal and Taubman, The Making of TRIPS, WTO: Geneva, 2015, 285-291.

[18] Paragraph 5 of the Doha Declaration on the TRIPS Agreement and Public Health confirmed that the 'effect of the [TRIPS] provisions … relevant to the exhaustion of intellectual property rights is to leave each member free to establish its own regime for such exhaustion without challenge, subject to the MFN and national treatment provisions of Articles 3 and 4'.

[19] Kirtsaeng v. John Wiley & Sons, Inc., 568 U.S. 519 (2013).

[20] 17 U.S. Code §109 (a)

[21] *Kirtsaeng*, note 19 *supra*, at 3.

[22] *Waring v. WDAS Broad. Station Inc.*, 194 A. 631, 638 (1937).

[23] See Antony Taubman, 'TRIPS encounters the internet: an analogue treaty in a digital age, or the first Trade 2.0 Agreement?' in Mira Burri and Thomas Cottier (eds.), Trade Governance in the Digital Age, (Cambridge, 2015), at 314

conduct as 'lawful' under an inapplicable law.' Her dissent sets out the essential policy question as follows:

> Because economic conditions and demand for particular goods vary across the globe, copyright owners have a financial incentive to charge different prices for copies of their works in different geographic regions. Their ability to engage in such price discrimination, however, is undermined if arbitrageurs are permitted to import copies from low-price regions and sell them in high-price regions.[24]

At the international level, she outlined the divergent positions as follows:

> In the absence of agreement at the international level, each country has been left to choose for itself the exhaustion framework it will follow. One option is a national-exhaustion regime, under which a copyright owner's right to control distribution of a particular copy is exhausted only within the country in which the copy is sold. … Another option is a rule of international exhaustion, under which the authorized distribution of a particular copy anywhere in the world exhausts the copyright owner's distribution right everywhere with respect to that copy. … The European Union has adopted the intermediate approach of regional exhaustion, under which the sale of a copy anywhere within the European Economic Area exhausts the copyright owner's distribution right throughout that region. … Section 602(a)(1), in my view, ties the United States to a national-exhaustion framework. The Court's decision, in contrast, places the United States solidly in the international-exhaustion camp.
>
> Strong arguments have been made both in favor of, and in opposition to, international exhaustion. … International exhaustion subjects copyright-protected goods to competition from lower priced imports and, to that extent, benefits consumers. Correspondingly, copyright owners profit from a national-exhaustion regime, which also enlarges the monetary incentive to create new copyrightable works.[25]

A subsequent Supreme Court decision, *Impression Products*,[26] concerning the aftermarket for used printer cartridges, addressed the question of international exhaustion of patent rights in a case that had some similarities with (and referred to) *Kirtsaeng*. The international dimension of the case pivoted on whether patent-protected cartridges sold abroad could be refilled and then sold in the United States, and the domestic dimension concerning whether conditions imposed on the subsequent use by purchaser of cartridges could be enforced under patent rights. In both circumstances, the majority of the court held that a sale of a patented product (even in a foreign jurisdiction) by the patent holder exhausted the patent rights. Thus the patent could not be used to prevent downstream resale or importation of a refilled cartridge. The majority decision revisited the policy considerations it had discussed in *Kirtsaeng*, in particular the common law 'refusal to permit restraints on the alienation of chattels.' In the domestic market, it found that,

> In sum, patent exhaustion is uniform and automatic. Once a patentee decides to sell—whether on its own or through a licensee—that sale exhausts its patent rights, regardless of any post-sale restrictions the patentee purports to impose, either directly or through a license.[27]

And when the patented article is sold internationally and then imported to the United States, the outcome was the same:

> An authorized sale outside the United States, just as one within the United States, exhausts all rights under the Patent Act… exhaustion occurs because, in a sale, the patentee elects to give up title to an item in exchange for payment. Allowing patent rights to stick remora-like to that item as it flows through the market would violate the principle against restraints on alienation. Exhaustion does not depend on whether the patentee receives a premium for selling in the United States, or the type of rights that buyers expect to receive. As a result, restrictions and location are irrelevant; what matters is the patentee's decision to make a sale.[28]

[24] *Kirtsaeng*, note 19 *supra,* at 43
[25] Ibid.
[26] Impression Products, Inc. v. Lexmark International Inc., 581 U.S. 1523 (2017).
[27] ibid. 1535
[28] ibid. 1538

Again, Justice Ginsberg dissented from the majority finding on the international dimension , arguing that the overseas sale operated independently of the US patent system: 'U. S. patent protection accompanies none of a U. S. patentee's sale abroad—a competitor could sell the same patented product abroad with no U. S.-patent-law consequence. Accordingly, the foreign sale should not diminish the protections of U. S. law in the United States.'[29]

In the court's analysis, it is the act of selling an article that exhausts the patent right, and the fundamental aversion to restraints on the use of physical chattels once sold forms the legal foundation for exhaustion – the exhaustion rule 'marks the point where patent rights yield to the common law principle against restraints on alienation.' Hence it is the transfer of rights over physical property – and the consequent common-law right to use and resell it without constraint from the 'remora-like' patent rights – that characterizes the essential transaction, not the fact that it is a sale undertaken within the panoply of applicable patent rights – in fact, the sale means that the product 'is no longer within the limits of the [patent] monopoly' and instead becomes the 'private, individual property' of the purchaser. But, again, the analysis may differ in cases where there is no tangible product, the transfer of ownership of which triggers the exhaustion of rights. Instead, the transaction may potentially be construed as the purchase of a limited licence, essentially defined in terms of a limited entitlement to use the patented invention within the scope of the exclusivity granted to the patent holder (the contrasting case of exhaustion of rights over intangible products is considered in section 4.4 below).

In this context, it is noteworthy that the majority decision in *Impression Products* takes care to distinguish the nature of the licence from the sale of a physical product.

> A patentee can impose restrictions on licensees because a license does not implicate the same concerns about restraints on alienation as a sale. Patent exhaustion reflects the principle that, when an item passes into commerce, it should not be shaded by a legal cloud on title as it moves through the marketplace. But a license is not about passing title to a product, it is about changing the contours of the patentee's monopoly: The patentee agrees not to exclude a licensee from making or selling the patented invention, expanding the club of authorized producers and sellers. See General Elec. Co., 272 U. S., at 489–490. Because the patentee is exchanging rights, not goods, it is free to relinquish only a portion of its bundle of patent protections. A patentee's authority to limit licensees does not, as the Federal Circuit thought, mean that patentees can use licenses to impose post-sale restrictions on purchasers that are enforceable through the patent laws. So long as a licensee complies with the license when selling an item, the patentee has, in effect, authorized the sale. That licensee's sale is treated, for purposes of patent exhaustion, as if the patentee made the sale itself. The result: The sale exhausts the patentee's rights in that item. … A license may require the licensee to impose a restriction on purchasers, like the license limiting the computer manufacturer to selling for non-commercial use by individuals. But if the licensee does so—by, perhaps, having each customer sign a contract promising not to use the computers in business—the sale nonetheless exhausts all patent rights in the item sold. … The purchasers might not comply with the restriction, but the only recourse for the licensee is through contract law, just as if the patentee itself sold the item with a restriction.[30]

Already, therefore, for trade in goods, it is impossible to understand the full range of their legitimate tradability internationally – the extent to which there is a downstream market – without careful analysis of the applicability and the effective scope of IP rights covering certain goods and the circumstances in which they are considered no longer to bind a purchaser (the exhaustion question). These cases draw on a legal tradition against restraints on the alienation of chattels (or constraints on dealing with a physical good once legitimately purchased); in both the cases just discussed, the majority drew on the roots of the common law, citing the seventeenth century jurist Lord Coke on this question:

> '[If] a man be possessed of … a horse, or of any other chattell … and give or sell his whole interest … therein upon condition that the Donee or Vendee shall not alien[ate] the same, the [condition] is voi[d], because his whole interest … is out of him, so as he hath no possibility] of a Reverter, and it is against Trade and Traffic], and bargaining and contracting betwee[n]

[29] ibid. 1539
[30] ibid. 1535

man and man: and [*539] it is within the reason of our Author that it should ouster him of all power given to him.'[31]

Pivotal, for these recent decisions, was a longstanding principle that favoured freedom to trade in legitimately purchased and owned physical goods, as against an approach that would favour the claims of the holder of intangible IP rights, rights seen perhaps as more contingent, less concrete.

These cases illustrate how technological change and the growing value given to intangible content when carried on physical carrier media continues to raise a tangle of legal and policy questions. As new technologies fundamentally alter how creative works are distributed and made available to the public, established legal frameworks are put into tension. In a forward-looking mood in the 1930s, the Waring court had proclaimed that "there is no reason … why an ancient generalization of law should be held invariably to apply to cases in which modern conditions of commerce and industry and the nature of new scientific inventions make restrictions highly desirable. Mere aphorisms should not be permitted to fetter the law in furthering proper social and economic purposes."[32]

Similar challenges for the adaptability of the law arise today as digital technology radically transforms the way valuable intangible content is traded and disseminated, to the extent that the physical carrier medium – the 'chattel' – can be dispensed with altogether. The advent of trading of IP-protected materials as intangible content on digital platforms has raised the issue of whether the answer to this question can and should be different depending on whether IP is embedded in a physical carrier medium (such as a book or optical disc) or simply traded as a licenced copy of a digital file. Digital disruption has raised the parallel question over the extent of downstream control over commercial reuse that an IPR can and should confer: in particular, whether and when rights over digital content are exhausted, limiting the right holder's entitlement to restrain further distribution of the protected digital work – in short, can legitimately purchased digital copies be resold (bearing in mind that the nature of the 'purchase' is essentially a limited IP licence)? One of the central trade policy questions in considering the implications of digital disruption is whether an intangible product, with similar properties for the consumer as its tangible counterpart, should be treated in the same way, or be treated differently, on the basis that it is essentially a bundle of intangible rights, with no physical substrate that can be 'owned' as a chattel. Would the Supreme Court have ruled differently if the textbooks concerned were e-books, and no tangible product was imported? Would both national exhaustion and digital exhaustion apply in such a case? The digital dimension of exhaustion is discussed in section 4.4 below.

4. …TO TRADE IN BITS

4.1 The Internet Protocol as a trade pact?

In 1990, as TRIPS negotiators progressed towards a final text, 0.05% of the world's population used the internet; in 2018, the ITU reported that the internet was accessible by over 51% of a population that had since grown by over 2 billion. Thus, following the rapid recent uptake of the internet in the developing world– and despite enormous disparities and troubling inequities in access – for the first time most people on the planet have access to the internet. The emergence of internet connectivity - from its roots in ARPANet, a US Government defence project, through a narrow band of academics and research scientists, to reach a global public - has already, in myriad ways, transformed social relations, political dynamics, and cultural life; and it has opened up new opportunities for economic and social development, to the extent that internet access is now recognized as a measure of progress towards attainment of the UN Sustainable Development Goals.

One TRIPS negotiator has since observed that the "the Internet was not then upon us [and the] negotiators did not indulge in futurology."[33] The Chair of the Uruguay Round Negotiating Group on TRIPS recalls that the negotiations proceeded unaware of the contemporaneous invention of the World Wide Web at CERN, nearby in Geneva.[34] It was around the time of formal adoption of the

[31] Edward Coke, *Institutes of the Laws of England: Containing the Exposition of Many Ancient and Other Statutes,* 1628, p. 223.

[32] Waring v WDAS, note 13 *supra*

[33] David Fitzpatrick, 'Negotiating for Hong Kong,' in Watal and Taubman, *The Making of TRIPS*, WTO: Geneva, 2015, 285-291.

[34] Lars Anell, "Keynote speech at the TRIPS Symposium, 26 February 2015" in Watal and Taubman, The Making of TRIPS, WTO: Geneva, 2015, 285-291.

TRIPS text, in 1994, that the implications of global connectivity through the internet began to enter mainstream consciousness, as its use rapidly broadened beyond the research and academic communities. It was in this period that time when consumers (initially in a handful of developed countries, later more equitably distributed) were first gaining access to the internet and the World Wide Web in particular, and the internet was gaining wider practical use in many countries as a means of cultural, social and commercial exchange. When the TRIPS negotiations commenced, there were 2308 internet hosts in existence, primarily research and academic institutions,[35] and the user base was narrow and almost entirely comprised of academics and scientific researchers. By the time TRIPS entered into force, the number of internet hosts had grown to 5,846,000, and the growth has proceeded exponentially since then, exceeding 1 billion by 2014. The user base grew still more sharply, from roughly 40 million in 1995 to over half the world's population by 2018.

Reflecting on the transformative impact of digital connectivity, in a commentary serendipitously published on January 1, 1995, the very day the TRIPS Agreement entered into force, Nicholas Negroponte predicted a fundamental transformation in the way we communicate, transact business and share content, summarised simply as "bits, not atoms". As he described this phenomenon, it had fundamental implications for the way in which we assess the value of goods, and the way that we conduct transactions in goods through trade:

> When returning from abroad, you must complete a customs declaration form. But have you ever declared the value of the bits you acquired while traveling? Have customs officers inquired whether you have a diskette that is worth hundreds of thousands of dollars? No. To them, the value of any diskette is the same - full or empty - only a few dollars, or the value of the atoms…. …. Our mind-set about value is driven by atoms. The General Agreement on Tariffs and Trade is about atoms. Even new movies and music are shipped as atoms. Companies declare their atoms on a balance sheet and depreciate them according to rigorous schedules. But their bits, often far more valuable, do not appear. Strange.[36]

This paradigm of trade and value – rooted in physical goods, or 'atoms' – was at that very time on the point of a major pivot, the implications of which are still becoming apparent today. Technological change and the dramatic shift towards the free flow of information were putting pressure on the established copyright system, but were also removing information-based constraints on trade and creating entirely new ways of trading in knowledge products. Buyers and sellers could find each other much more readily, across the globe. New forms of widespread trading in intangible content were created, once it was possible when reaching substantial consumer markets to detach such content from the physical substrate or 'atom-based' proxy that had served as a vehicle for transactions in this content.

The rapid dissemination of establishment of the Internet created the pathways for IP-protected content to be disseminated in the form of packets defined according to the TCP/IP protocol. It enabled the development of a unique, apparently seamless, multifunctional international trading environment, a digital counterpart to the borderless trading domain in the 'analogue' world that multilateral trade rules are crafted to support.

A combination of this necessarily rigid, uniform protocol, and a set of single, unambiguous addresses (the domain name system and the Internet Protocol (IP) logical addresses to which domain names point), creates a reliable system of exchanging and forwarding data to predictable addressees with confidence that the data will be intelligible to the recipient. The universality, the flexibility, the adaptability and openness of the Internet – what Zittrain calls a generative grid[37] – flows paradoxically from this rigid orthodoxy. The essence of the Internet is therefore a protocol, not any particular collection of hardware or network of data conduits – it is a rule rather than an assemblage of pluming. This provides an instructive metaphor for the more general function of international rules as underpinning greater flows of information, cultural exchanges and trade:

> Electronic commerce presents major policy contradictions for many governments. On one hand, the creation of the [TCP/IP] as a harmonised protocol for data exchange sets the stage for explosive growth of Internet-based commerce in a virtual global community and

[35] www.isc.org/solutions/survey/history
[36] Nicholas Negroponte, "Bits and Atoms, " *Wired*, Issue 3.01 (January 1995)
[37] Jonathan Zittrain, 'The Generative Internet,' 119 *Harv L Rev*, 1974 [2006]

> marketplace. On the other hand, the trade policies and strategies of governments are embedded in notions of territoriality. ... Governments must avoid fragmentation of the emerging global online market because of incompatible approaches to rule making among nations. The best way to do this is through negotiating effective multilateral rules. In key respects, the TCP/IP is a metaphor for good rule making. Just as the TCP/IP is a set of rules which makes globalised data exchange possible, so good trade rules facilitate global commerce, including electronic commerce. [38]

For the evolving trade in knowledge, the TCP/IP protocol was the equivalent, for intangible content defined in terms of its informational content, of the creation of the standard container for trade in physical goods. Thus, the *Economist* has observed that, as an harmonised network for international exchanges, the Internet operates in a manner similar to an open international trade regime: 'the internet is as much a trade pact as an invention … Just as a free-trade agreement between countries increases the size of the market and boosts gains from trade, so the internet led to greater gains from the exchange of data and allowed innovation to flourish.'[39] The rise of internet commerce has illustrated how rules operate to promote international exchanges and, paradoxically, how a backbone of rules-based harmonization may provide a basis for diversity in cultural expression and diffusion of information. The trade policy significance was evident as early as 1998, when the WTO's Geneva Ministerial Declaration on global electronic commerce[40] recognized the 'new opportunities for trade' that were then already unfolding.

The 'atoms to bits' shift predicted by Negroponte in 1995 has since eventuated to a considerable extent, transforming both domestic markets and international trade – not merely opening up new avenues for trading and thus competing in the supply of established goods and services, but also creating altogether new forms of commercial transaction, novel possibilities for exchanging value through new trading platforms. This transformation was most immediately apparent in the development of new practical means of supplying intangible content, notably the now widely-used platforms for consumer access to ebooks and other publications, software applications, music and audiovisual works. But at a conceptual level, it redefined or at least diversified the very character of the commercial transactions that constitute trade in valuable intangible content, or the 'purchase' of such content (which is, in fact, generally the acquisition of a restricted use licence, defined by IP, by technological measures, by contract, or more typically by a combination of these). As debate continued whether 'digital products' should be considered goods or services,[41] or something else,[42] other business models have emerged, blurring the boundaries of established forms of transaction in such IP-defined and IP-protected content, such as streaming subscriptions, 'freemium' shareware, and in-app purchases. While many have the essential character of services, uncertainty remains over digital products that are analogous to traditional physical products containing essentially the same content. Equally, IP rights as such are increasingly traded as discrete items,[43] whether through dedicated IP exchanges established as well-defined marketplaces,[44] or in a broader sense of a 'market' for IP rights, such as the emerging 'market for brands', comprising purchase, franchising or licensing of trademarks and brands as the subject of commercial transactions in their own right,[45] and the growth of markets for technology as such, 'disembodied from physical goods.'[46]

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[38] Department of Foreign Affairs and Trade, *Driving Forces on the New Silk Road*, Canberra, 1999, p 85

[39] The web's new walls, *The Economist*, September 2 2010

[40] WT/MIN(98)/DEC/2, 25 May 1998

[41] "[T]here was still a lack of clarity with regard to the classification under GATT or GATS of certain products which can be delivered both in electronic form and on a physical carrier," Summary by the Secretariat of the Issues Raised, Dedicated Discussion on Electronic Commerce under the Auspices of the General Council on 15 June 2001, WTO document WT/GC/W/436 (6 July 2001); despite continuing debate and a voluminous scholarly literature, the question remains unresolved at a formal level.

[42] See, e.g., WTO, Communication from Indonesia and Singapore, Preparations for the 1999 Ministerial Conference: Work Programme on Electronic Commerce, WT/GC/W/247, 9 July 1999.

[43] OECD, Intellectual property market, in OECD Science, Technology and Industry Outlook, 2012, OECD Publishing, at dx.doi.org/10.1787/sti_outlook-2012-24-en

[44] e.g. https://www.ip-marketplace.org/ , maintained by the Danish Patent and Trademark Office; and Asia IP Exchange (AsiaIPEX) developed by the Hong Kong Trade Development Council at http://www.asiaipex.com.

[45] Carl Benedikt Frey, Atif Ansar, Sacha Wunsch-Vincent, Defining and Measuring the "Market for Brands": Are Emerging Economies Catching Up?, Economic Research Working Paper No. 21, Publication year: 2014

[46] Arora, Ashish and Gambardella, Alfonso, Ideas for Rent: An Overview of Markets for Technology (June 2010). Industrial and Corporate Change, Vol. 19, Issue 3, pp. 775-803, 2010. Available at SSRN: https://ssrn.com/abstract=1617051 or http://dx.doi.org/dtq022

4.2 Creating new markets for IP

The transformative effect of digital technologies on trade in knowledge products has been profound throughout the period of implementation of the TRIPS Agreement. The scale of this trade in IP is remarkable, as is its impact in many sectors. For many consumers, the most evident manifestation is in the form of online platforms for access to digital content, such as music downloads, apps, and e-books. In 2001, the global recorded music industry[47] reported revenues of USD 23.2 bn for sales of physical media; this total has fallen steadily since then, reaching USD 4.7bn in 2018. Digital downloads only registered a significant proportion from 2004, peaked in 2012 at USD 4.3bn, and fell to USD 2.3bn in 2018. Streaming revenues rose sharply more recently, at USD 8.9bn in 2018 well exceeding the revenues from both physical media and downloads. In the book sector, the Association of American Publishers reports that in the US market in 2018, for the second successive year, "publisher sales to online retail channels exceeded sales to physical retail channels with sales to online retail at $8.03 billion and sales to physical retail at $6.90 billion."[48] In a Chinese market of over USD 1billion in 2016, digital editions reportedly accounted for around 28%.[49] A survey of the publishing market in 2018 indicated the highest revenue share from digital editions in Japan (24.5%), Sweden (23.2%), the Republic of Korea (22.5%) and the U.S.[50]

Despite only coming into existence with the introduction of the iPhone in 2008, app stores have become major commercial platforms creating new international marketplaces for intangible content. One industry report reported some 115 billion transactions took place in 2019 on the two major app stores, such as Google Play and the Apple iOS App Store.[51] By one estimate, app store revenues were USD 120bn in 2019, rising 110% since 2016.[52] This major area of international commercial activity is striking in its scale, given that this category of commerce did not exist before 2008; and yet much of this trade is not reported in existing trade statistics,[53] the chief source of data currently the private sector itself, many details (such as the distribution of revenue to authors and app developers worldwide) being treated as confidential business information. A WTO report comments:

> It is not clear to what extent these transactions are recorded in current trade statistics, but their value is now a major component of revenues in the content industries, and a share of these earnings is redistributed to app developers, musicians, authors and other creators internationally. A clearer picture of these sizeable revenue flows would improve our understanding of the pattern of international trade in these sectors, and could lead to a more accurate understanding of how economies benefit from this form of international trade, as internet platforms serve to connect content developers across the globe with consumers in multiple jurisdictions.[54]

The WTO report examines the transformational effect of trade in digitizable goods (defined as physical goods that can be digitalized) including "cinematograph film; traditionally printed matter such as books, pamphlets, maps, newspapers, journals, periodicals, postcards and personal greeting message or announcement cards; video games; computer software; and recorded media such as musical records, tapes and other sound or similar recordings"[55] and concludes that imports of such goods in physical form has fallen to 0.8% of WTO members' total imports, by contrast with the proportion of 2.9% in 2000 (see figure 3).

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[47] International Federation of the Phonographic Industry (IFPI), Global Music Report 2019 // State of the Industry, at https://www.ifpi.org/recording-industry-in-numbers.php

[48] AAP StatShot Annual Report for Calendar Year 2018, June 21 2019.

[49] WIPO, The Global Publishing Industry in 2016: A Pilot Survey, available at wipo_ipa_pilotsurvey_2016

[50] WIPO (2020). The Global Publishing Industry in 2018. Geneva: World Intellectual Property Organization.

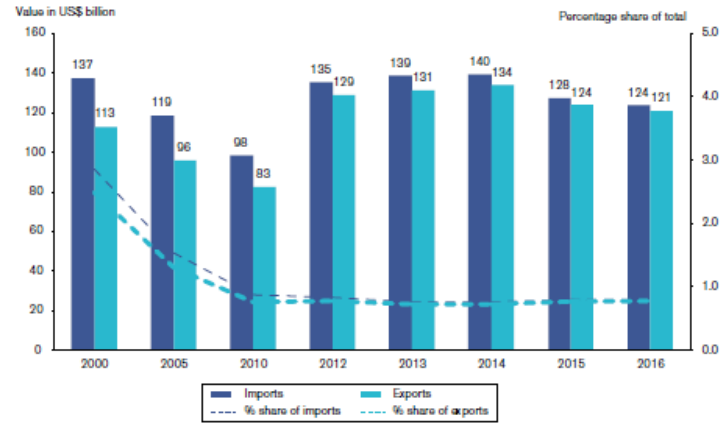
[51] Sensor Tower, Q4 2019 Store Intelligence Data Digest, available at https://go.sensortower.com/Q4-2019-Data-Digest.html

[52] App Annie, State of Mobile 2020, available at https://www.appannie.com/en/go/state-of-mobile-2020/

[53] On the difficulties of measuring this trade, see Joscelyn Magdeleine & Andreas Maurer, Measuring International Intellectual Property Transactions in A Globalized World: Current Challenges and Possible Improvements, Chapter 5 in Taubman & Watal (eds.), *Trade in Knowledge;* and Erick Oh, The Global Digital Content Landscape, Chapter 10 in Taubman & Watal (eds.), *Trade in Knowledge*.

[54] WTO, World Trade Report 2018: The future of world trade: How digital technologies are transforming global commerce, Geneva, 2018, at 98

[55] Ibid, at 92.



Source: WTO Secretariat calculations based on UN COMTRADE data.

Figure 3 Value and share of trade in physical form of digitisable goods (Source, WTO, 2018)

The advent of widespread access to digital platforms has, indeed, created entirely new markets for content. One example is the market for caller tunes, the music played to those calling a mobile telephone. This is a major source of revenue for the predominantly domestic music sector in developing countries such as India, where reportedly over a billion transactions a day are undertaken domestically,[56] and with revenue from foreign markets reportedly comprising 10% of this income stream. Plainly, TRIPS negotiators could not have anticipated not merely the scale and importance, but even the very existence of this particular marketplace for highly specific licences for musical works.

In contrast, with trade in such content when included on physical media, 'purchase' of digital content generally does not lead to a transfer of ownership, but rather simply entails a conditional and limited licence for access. Thus, the 2018 terms and conditions for Google Play refer to 'purchase of content' and a 'sale contract', but then stipulate:

> License to Use Content. After completing a transaction or paying the applicable fees for Content, you will have the non-exclusive right, solely as expressly permitted in these Terms and associated policies, to store, access, view, use, and display copies of the applicable Content on your Devices or as otherwise authorized as part of the Service for your personal, non-commercial use only. All rights, title and interest in Google Play and Content not expressly granted to you in the Terms are reserved. Your use of apps and games may be governed by the additional terms and conditions of the end user license agreement between you and the Provider.
> Violation of License Terms. If you violate any of the Terms, your rights under this license will immediately terminate, and Google may terminate your access to Google Play, the Content or your Google Account without refund to you.[57]

Similarly, Apple's Licensed Application End User License Agreement opens with the clear statement that "[apps] made available through the App Store are licensed, not sold, to you. … Licensor grants to you a nontransferable license to use the Licensed Application on any Apple-branded products that you own or control and as permitted by the Usage Rules…."[58] And Amazon's Kindle Store stipulates that "Kindle Content is licensed, not sold, to you by the Content Provider", and grants "a non-exclusive right to view, use, and display … Kindle Content" solely as permitted.

[56] https://www.comviva.com/news-events/comvivas-crbt-platform-delivers-1-billion-caller-tunes-every-day-india.htm

[57] Google Play Terms of Service, February 5, 2018, at https://play.google.com/about/play-terms/index.html, accessed 23 December 2019.

[58] https://www.apple.com/legal/internet-services/itunes/dev/stdeula/, accessed 23 December 2019.

A much broader policy debate surrounds this instance of the shift 'from asset to access', or the development of 'an economy built around access relations' shifting from "a property regime based on the idea of broadly distributed ownership to an access regime based on securing short-term limited use of assets controlled by networks of suppliers"[59]. A recent critical analysis of the implications of trading "property rights for conditional privileges" argues that the "baseline for property rights should be a function of the law, not contingent on the kindness of copyright holders and retailers"[60] and calls for the law to recognise purchasers' property rights over digital property, akin to property rights over chattels. For immediate analysis of the trade policy and economic implications, however, it remains the case that the very legal character of trade in digital content is, on the whole, significantly different from trade in corresponding physical carrier media, in terms of the formal transfer of ownership, in terms of the contingent character of access to content, and in terms of the further reach of applicable IP rights over the downstream use of and trade in the content to which access is procured.

4.3 … and new trade opportunities?

At least at the level of principle, the resultant technological transformation of commercial practice has the potential both to improve prospects for equality of commercial conditions for enterprises around the globe regardless of their geographical location (the kind of market access that would be favoured, in principle, by trade policy), and to ensure more efficient, and more transparent, competition in domestic markets.[61] The resultant new forms of trading, in principle, open up new prospects for socially beneficial competition and for international market access as a de facto form of trade liberalisation. In particular, the interconnectivity afforded by the Internet protocol suite, has opened up new opportunities for participation in international commercial activity, notably by enterprises in developing countries and by MSMEs. A recent position paper submitted by several WTO Member governments observes that:

> Digital technology is transforming the global economy. This transformation presents new opportunities to promote inclusive economic growth, including by connecting rural to urban economies; opening new channels of trade for landlocked countries; facilitating the participation of women and micro enterprises in the formal economy; providing micro, small and medium-sized enterprises (MSMEs) access to a global consumer base; and facilitating cross-border trade in services previously considered not technically feasible.:[62]

The statistics, such as they are, provide some evidence that developers across the world may be taking advantage of these opportunities. Apple claimed in January 2020 that its App Store " provides developers of all sizes access to customers in 155 countries. Since the App Store launched in 2008, developers have earned over $155 billion, with a quarter of those earnings coming from the past year alone".[63] Alphabet reports that " over $80 billion has been earned by developers around the world from Google Play, [which has] over 2 billion active monthly users."[64].

The practical implications for the creative industries – and development prospects - in a developing country context were set out in a recent ITC study considering the prospects for this sector in Rwanda,[65] which concluded:

> digitization has contributed to the robust growth of creative industries in recent years, generating $2.25 trillion in revenue and 29.5 million jobs globally. It has also made digital export in the creative industries more accessible to small and medium-sized enterprises, including those from developing countries. Digital export in creative industries could underpin

[59] Jeremy Rifkin, *The Age of Access*, New York: Penguin Putnam, 2000, at 4.

[60] Aaron Perzanowski and Jason Schultz, The End of Ownership: Personal Property in the Digital Economy, Cambridge: MIT, 2016, at 187.

[61] Van Welsum, D. et al., Unlocking the ICT Growth Potential in Europe: Enabling People and Businesses, The Conference Board for the European Commission, 2013

[62] WTO, *Trade Policy, The WTO and the Digital Economy*, Communication from Canada, Chile, Colombia, Côte d'Ivoire, the European Union, the Republic of Korea, Mexico, Montenegro, Paraguay, Singapore and Turkey JOB/GC/116, JOB/CTG/4, JOB/SERV/248, JOB/IP/21, JOB/DEV/42 (13 January 2017)

[63] Apple rings in new era of Services following landmark year, January 8, 2020, https://www.apple.com/newsroom/2020/01/apple-rings-in-new-era-of-services-following-landmark-year/

[64] Alphabet Q4 2019 Earnings Call, February 3, 2020, at https://abc.xyz/investor/static/pdf/2019_Q4_Earnings_Transcript.pdf

[65] International Trade Centre. *Creative industries in Rwanda: Digital paths to global markets*. ITC, Geneva, 2019.

overall developing countries exports, providing a channel to leverage their rich culture and heritage for economic growth and diversification. Developing countries have already gained a foothold in the global creative export market. They account for 53% of worldwide exports of creative goods, amounting to $265 billion in export revenue. Although developed economies still dominate global trade in creative services, momentum is building in developing countries, with least developed countries' share in exports of personal, cultural and recreational services growing 22.7% a year since 2012.

New platforms, tailored to specific needs, can open up these prospects further, for instance sites promoting local music such as Famemix in Rwanda, or Jokotext and MusikBi in Senegal. Despite these promising trends, considerable hurdles of course impede opportunities to benefit from these new avenues for trade in knowledge, particularly in the developing world, including shortcomings in digital infrastructure, lack of equitable access to established trading platforms, and the inevitable lag in the legal and regulatory framework in responding effectively to the distinctive characteristics of these new forms of trade. The following section reviews these evolving characteristics of intangible trade in knowledge products.

5. BUT WHAT CONSTITUTES 'TRADE IN BITS'?

5.1 Regulating trade-related aspects of IP in the digital environment

The conclusion of a multilateral trade agreement on the 'trade-related aspects' of IP rights, in the form of the TRIPS Agreement, was, in effect, a recognition of the need to address what was already a complex interplay between international trade and the IP system; even at a time when that very interplay was in the process of radical transformation. Earlier, the IP system had been seen, conventionally, to be at odds with the objectives of market liberalization for trade in goods, so that IP protection had been conceived as an allowable exception under the GATT (Article XX), and not a positive obligation. When the TRIPS Agreement inverted this logic, and made application of high standards of IP protection a requirement within the WTO trade law system, critics of TRIPS viewed it as the intrusion of non-trade issues into the trading system in tension with the goal of market liberalization,[66] by imposing 'behind the border' standards rather than opening up trade. Yet the preamble to TRIPS set the IP system in the context of international trade, recording WTO Members' desire "to reduce distortions and impediments to international trade, and taking into account the need to promote effective and adequate protection of intellectual property rights, and to ensure that measures and procedures to enforce intellectual property rights do not themselves become barriers to legitimate trade".

Hence, the advent and implementation of the TRIPS Agreement spurred a reconsideration of the complex and diversifying interaction between IP and trade. Yet, emerging as it did from within the trade-in-goods paradigm, the Agreement as originally conceived was not negotiated in anticipation of the massive, widespread tradability of IP rights as such. , and did not envisage the sale of an IP licence as constituting the essential value at the heart of commercial transactions constituting international trade. The evolving diversification of commercial transactions dealing with intangible content, fuelled by the disruptive impact of digital technology – and the transformation both of content industries and of the opportunities for creative and innovative firms across the globe - suggests that it is timely to reconsider the 'trade-related aspects' of the IP system in the light of the dramatic transformations which have proceeded in parallel with the implementation of the TRIPS Agreement across the WTO membership over the past quarter-century. These developments suggest that the evolution of the IP system and the digital environment together compel a reconsideration of what constitutes 'trade'.

Even as the ink had barely dried on the TRIPS Agreement, digital disruption of trade in IP content posed a range of challenges for the international IP system and above all for an agreement that sought to deal with the interplay between IP and international commerce – the pace of technological innovation effectively forcing a redefinition, in practice, of the 'trade-related aspects' of IP rights. The challenges posed confronted some fundamental concepts – on the face of it, at least, a kind of technological dilution or even abolition of national borders, with conceptual and practical difficulties in correlating the exercise and enforcement of IP rights with distinct and well defined national jurisdictions, testing the longstanding principle of territoriality of IP rights and licences granted under

[66] E.g. Panagariya, A, "TRIPS and the WTO: An Uneasy Marriage", in Keith Maskus (ed), The WTO, Intellectual property Rights and the Knowledge Economy, Edward Elgar, 2004, at 42-53 Bhagwati

them; and the detachment of IP content from the physical carrier media that had conventionally served as a proxy for trade in IP rights, making it possible for the general consumer to enter the market for pure licenses in IP.

5.2 Trade in digital products

Governments have long debated how WTO rules should apply to digital products: how they are taxed, valued and classified, and whether differential treatment of digital trade amounts to discrimination. For instance, what happens when the 'same' content is conveyed across the same border, but through electronic transmissions as a digital product, rather than as content embedded on a physically traded good? What is functionally the very same software package, for instance, may be downloaded or purchased on a disc; and a package purchased on a disc may be partially or fully upgraded over the internet as part of the same commercial transaction. The packet-switching technology and dispersed architecture of the Internet could mean that different elements of this content could pass undetected through many different jurisdictions. No distinct package or assemblage of atoms is presented to customs officials for clearance at a defined border. This uncertainty over the 'real world' characteristics of such products leads to the specific question of how digital products should fall within the conventional categories of goods and services. Early in the WTO debate, one delegation pointed out that 'it was difficult to see how a distinction between "goods" and "services" could be handled in practice, even if agreed on in theory. As the transmitted bytes of data streams consisted only of ones and zeroes, the delegation raised the questions how it was possible to decide for each individual case whether a particular transmission was covered by goods or services disciplines?'[67]

And, indeed, an early paper submitted by Indonesia and Singapore, discussing the need for legal certainty in classification, speculated about the possibility of a third category of trade, that of trade in IP as such, which would be consonant with the increasing attention given to the contents, rather than the platform on which the contents are delivered:

> In attempting to classify digitized products one possible criterion that has been raised is to consider whether the product has a tangible counterpart in the physical world. This criterion could then be applied to over-the-counter purchases of books, music and software even if such purchases were delivered as digitized products and not in terms of their physical counterparts. An alternative is to just consider the contents themselves. Books, music and software are not in themselves new commercial products. It is just that prior to the advent of e-commerce, they were treated as goods because they had to be delivered in the form of a carrier media, be it paper, cassettes or diskettes etc. and those carrier media were classified as goods. Now that those forms of tangible carrier mediums are no longer necessary maybe what we need to consider is whether the software and music would continue to be classified as goods, or it might be more appropriate for them to be classified as services.
>
> It may also not be a coincidence that all these three examples, without a carrier medium are intangible goods considered under the ambit of intellectual property rights. Could such products than be simply considered as trade in intellectual property rights and not be classified as a good or a service? What is paramount though is that the criteria for classification should provide legal certainty on how the good, the service or the intellectual property right is to be treated.[68]

Meanwhile, the trade in digital products has grown apace and a massive body of practical experience has accumulated. This may indicate that either that no definitive position is needed, is feasible or desirable under international trade law; or it may imply that the question may ultimately be resolved in a more ad hoc way, through pragmatic negotiation, through dispute settlement or through the accumulation of bilateral and regional trade agreements dealing with digital products, with potentially diverse forms of classifications applicable to a widening array of such products. To be sure, WTO dispute settlement has effectively confirmed that services delivered over the Internet are indeed covered by GATS obligations, despite the positions taken by some governments in WTO policy discussions that either an express common understanding would be desirable, or specific, additional

[67] General Council, Interim review of progress in the implementation of the work programme on electronic commerce, Communication from the Chairman of the Council for Trade in Goods, WT/GC/24, 12 April 1999 at p 3

[68] Work Programme on Electronic Commerce, Communication from Indonesia and Singapore, WTO document WT/GC/W/247 (9 July 1999), at paragraphs 10-14

commitments concerning Internet-supplied services would be required before any obligations came into effect.[69]

Recent bilateral and regional trade agreements have, in any case, addressed the issue in different ways.[70] A number of recent agreements have established rules expressly addressing trade in digital products, defining such products and regulating their trade in terms that are similar, but not identical. In general, such agreements indicate, in various formulations, that any definition of a digital product is without prejudice to Parties' views on whether trade in digital products through electronic transmission should be categorised as trade in services or goods. But the scope of definition of 'digital products' differs, including on apparent coverage of content included on carrier media. The Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) [71] and the recent agreement between Canada, Mexico and the United States (variously styled by its parties T-MEC, CUSMA and USMCA)[72] both define a digital product as "a computer programme, text, video, image, sound recording or other product that is digitally encoded, produced for commercial sale or distribution, and that can be transmitted electronically." The Australia-Japan Economic Partnership Agreement defines the term similarly but expressly excludes products "that are fixed on a carrier medium"[73] (in effect, the 'chattels' discussed above). By contrast, the Korea-US Free Trade Agreement defines digital products in otherwise identical terms, but "regardless of whether they are fixed on a carrier medium or transmitted electronically".[74] Given that the principal undertaking applied to trade in digital products is one of non-discrimination, such divergences in definitional scope may have limited practical impact – beyond reinforcing a general liberalization of such trade – but they clearly betoken some divergence as to the trade law significance of digital content embedded on a traded physical carrier medium. Since, also, some provisions require treatment of digital products that is no less favourable to 'like' digital products, to the extent that the definition includes content on carrier medium, this non-discriminatory principle may have implications for traded 'chattels' that have traditionally been treated as traded goods – particularly if physical carrier media are subject to tariffs or other constraints at the border which are not applied to their intangible counterparts.

The Comprehensive and Economic Trade Agreement (CETA) between the EU and Canada takes a different approach to dealing with trade in parcels of digital content. It does not refer to digital products, but in its e-commerce chapter defines a 'delivery' as "a computer program, text, video, image, sound recording or other delivery that is digitally encoded", a phrasing closely analogous to that of other agreements' definition of 'digital product'. Despite the substantive overlap in these definitions, this choice of terminology seemingly emphases the means of transmission, and not the treatment or categorisation of digital content as such. Indeed, the term 'delivery' may perhaps allude to a trade in services framework[75] In any event, as in other trade agreements, a key element concerns the exclusion of "a customs duty, fee, or charge on a delivery transmitted by electronic means."

Chapters on electronic commerce or digital trade in recent trade agreements are generally framed with the proviso that their terms are without prejudice to the parallel rules on IP. If the protection of IP – and the approach taken to the question of exhaustion – is to prevail in this way over parallel, newly-crafted obligations to treat digital products (including, potentially, 'like' digital products traded on physical carriers), this may provide a basis for differential treatment between intangible and tangible versions of the same content in some circumstances. More generally, and at the very least, this kind of provision may betoken the need for a more coherent view, from a trade policy point of view, of the IP dimension of transactions for digital products.

[69] See the summary of the debate in Sasha Wunsch-Vincent, The Internet, cross-border trade in services, and the GATS – lessons from US-Gambling, *World Trade Review*, 5:3, 319-356 at 323

[70] For a general discussion of trade agreements in this area, see Mira Burri, Adapting Trade Rules for the Age of Big Data, Chapter 20 in Taubman & Watal (eds.), *Trade in Knowledge*.

[71] Article 14.1

[72] Article 19.1

[73] Article 13.2

[74] Article 15.9

[75] For instance, Article XXVIII of the WTO General Agreement on Trade in Services defines supply of a service to include its 'delivery'.

(c) "measures by Members affecting trade in services" include measures in respect

5.3 Beyond trade in goods?

Taken together, these developments – in technology, in business patterns (particularly new ways of linking content providers with content consumers) and in international agreements – raise probing questions about the very character of trade, its essential legal and economic characteristics, and how it is to be measured and classified. In particular, the development of international digital platforms that permit the trading of pure content means that the commercial nature of the transaction is decreasingly less likely to be defined by the transfer of ownership in a physical thing; the true character of the transaction emerges more clearly as the acquisition of a licence or contract over content defined by IP rights.

The WTO's multilateral trade agreements – and the overarching Agreement Establishing the WTO itself – do not venture an express formal definition of what constitutes 'trade' as such. A dispute settlement panel has observed that "although the preamble to the WTO Agreement refers in particular to expanding trade in goods, it does not give sufficiently precise information on the terms which we must interpret".[76] And this may be inevitable, as trade policy has long wrestled with the boundaries of the kind of commercial transactions that are validated as 'trade', which in turn raises deep questions of economic value.

By one recent, standard definition, 'trade' is the "exchange of goods between two individuals or nations … the basic component of economic activity … undertaken for mutual advantage."[77] Naturally such a definition begs the question of what is counted as a 'good' – and how material and enduring it must be. The intuitive tendency to associate economic value with the outcomes productivity only when captured in lasting tangible form – the proverbial 'things you can drop on your foot' - is already apparent in Adam Smith's reference, in the *Wealth of Nations*, to the intangible or ephemeral product of "players, opera-singers, opera-dancers, etc." as producing "nothing which could afterwards purchase or procure an equal quantity of labour. Like the declamation of the actor, the harangue of the orator, or the tune of the musician, the work of all of them perishes in the very instant of its production."[78]

In more recent times, the increasing recognition of the value of the intangible component of commercial transactions – and its consequential significance for economic growth and trade policy - inevitably led to a reframing of what constitutes 'trade', resulting most consequentially in the incorporation of trade in services within the framework of multilateral trade law through the vector of the General Agreement on Trade in Services,[79] and parallel developments in numerous bilateral and regional trade agreements. Thus, in Goode's dictionary, trade "usually refers to the sale and distribution of goods and services across international borders. There are many different ways of doing this, but there must be a commercial element for a transaction to qualify as trade." By one definition, a good is "any physical object, natural or manmade, or service rendered, that could command a price in a market".[80] A more precise technical definition of tradeable goods in the context of statistics is found in the recommendation that "international merchandise trade statistics record all goods which add to or subtract from the stock of material resources of a country by entering (imports) or leaving (exports) its economic territory."[81]

The definitions of these concepts begin to count – literally count – when used to define statistics. In balance of payments statistics, goods are defined as "physical, produced items over which ownership rights can be established and whose economic ownership can be passed from one institutional unit to another by engaging in transactions. … The production of a good can be separated from its subsequent sale or resale."[82] And services are defined as " the result of a production activity that changes the conditions of the consuming units, or facilitates the exchange of products or financial

[76] Panel Report, EC – Asbestos, para. 8.48.

[77] Oxford Dictionary of Economics, Oxford University Press 2013 (4th edition).

[78] Adam Smith, An Inquiry into the Nature and Causes of the Wealth of Nations 119 (Henry Frowde ed., Oxford Univ. Press 1909) (1776).

[79] See Tuthill et al, How Digitization is Transforming Trade, Chapter 3 in Taubman & Watal (eds.), *Trade in Knowledge*, for a general overview of the trade in services dimension.

[80] Bannock et al, Dictionary of Economics, Penguin, 2004

[81] United Nations, International Merchandise Trade Statistics: Concepts and Definitions 2010, ST/ESA/STAT/SER.M/52/Rev.3 Statistical Papers Series M No. 52, 12.

[82] IMF, Balance of payments and international investment position manual, Washington, D.C.: International Monetary Fund, 2009, at 119.

assets. Services are not generally separate items over which ownership rights can be established and cannot generally be separated from their production."[83]

Notably, there are certain cases in which the passage of physical goods across borders is counted as a service, not because of their inherent nature or value, but because of the nature of the commercial transaction that leads to their shipment, specifically "newspapers and periodicals sent under direct subscription" and "media used for carrying software customized or written for a specific client or originals of any nature, where identified."[84] In other words, whether a transaction is classed as a good or service in these cases will in turn depend not on the characteristics of the physical good itself, but rather the commercial context within which the good is shipped. This is a telling reminder that, again, it is the character and legal context of the way in which value is defined and exchanged that determines the nature of 'trade', rather than the objective characteristics of any object, tangible or otherwise, that is transmitted in the course of, or as a consequence of, the transaction.

The extent to which IP rights define and govern transactions in both physical and digital products can significantly shape both domestic and international trade in these materials, specifically when physical goods embody IP protected content and when digital products are defined and transacted in the form of IP licences. Hence the applicable IP rights can form an inherent part of the context of commercial transactions and in turn define the very nature of the market for such products. Their significance is particularly evident when considering the effect of exhaustion of IP rights, and more generally as to whether conceptual and legal preference is to be given to the tangible character of traded goods, or whether the IP dimension is to prevail.

On the domestic plane, the interplay between IP and trade in goods was considered by the US Court of Appeals for the Federal Circuit in the *ClearCorrect* case[85], concerning the authority of the International Trade Commission under the Tariff Act to "remedy only those unfair acts that involve the importation of 'articles' as described in 19 U.S.C. § 1337(a)." The case concerned whether this authority extended to the electronic transmission of digital data, when a digital data model for the alignment of teeth, transmitted from Pakistan to the United States, was argued to be an importation of an article infringing a US patent and thus subject to border measures as a form of unfair competition. The ITC had held that "the digital data sets at issue … are true articles of international commerce that are imported into the United States, and their inclusion within the purview of section 337 [of the Tariff Act] would effectuate the central purpose of the statute."[86] However, on appeal to the Federal Circuit, the majority opinion found that 'articles' means 'material things,' acknowledging that "electronic transmissions have some physical properties—for example an electron's invariant mass is a known quantity"[87] - but arguing that "commonsense dictates that there is a fundamental difference between electronic transmissions and 'material things'". The majority saw this as a policy matter for Congress, which "is in a far better position to draw the lines that must be drawn if the product of intellectual processes rather than manufacturing processes are to be included within the statute."[88]

In her dissent, Judge Newman argued that the Tariff Act was "enacted to provide additional support to domestic industries that dealt in new and creative commerce, by providing an efficient safeguard against unfair competition by imports that infringe United States patents or copyrights."[89] She argued that the digital data sets were patentable inventions: "[i]t is now beyond debate that digital goods are subject to the patent law, and it is beyond debate that digital goods can be imported … the intention to omit unforeseen, later-discovered technologies cannot be imputed to this statute."[90]

This case highlights one of the central trade policy questions in considering the implications of digital disruption: whether an intangible product, with similar properties for the consumer as its tangible counterpart, should be treated in the same way, or should be treated differently, on the basis that it is essentially a bundle of intangible rights, with no physical substrate that can be 'owned' as a chattel; or, more succinctly, how far we can indeed apply the majority, avowedly 'commonsense',

[83] ibid.
[84] International Merchandise Trade Statistics: Concepts and Definitions 2010, note 81, 21.
[85] ClearCorrect Operating, LLC v. International Trade Commission, 810 F.3d 1283 (Fed. Cir. 2015).
[86] ibid., at 1304
[87] ibid., at 1287
[88] ibid at 1302, citing its decision in *Bayer AG v. Housey Pharm., Inc.,* 340 F.3d 1367, 1374 (Fed.Cir.2003)
[89] ibid at 1304
[90] ibid. at 1307

view in *ClearCorrect* that there is indeed " a *fundamental* difference between electronic transmissions and material things" (emphasis added).

5.4 IP in the digital marketplace: the effect of exhaustion

One consequential question for trade and IP policy is whether, to what extent and how, digital disruption can and should create single markets for content that transcend national borders. Can digital markets for content defined by IP rights be forged internationally, for the mutual benefit of the creators and consumers of creative content, while still compatible with IP systems defined and structured on a territorial basis? Digital disruption has created practical possibilities for global markets for IP-protected digital content, and to some extent technological development has enabled the *de facto* eradication of the national borders that used to enable IP right holders to segment markets for IP content according to geographical boundaries. Indeed, this leads to competing expectations – right holders seeking to maintain downstream control over the distribution of content to other jurisdictions, consumers of content expecting immediate access to a global single market of content, with a corresponding single global licence.

In the past 'analogue' context, we have seen how the US Supreme Court drew an analogy between the purchaser's rights over the imported copyright-protected textbook and ownership of a 'chattel' (a tangible item of property), rather than viewing the physical book as being essentially a mere carrier medium for protected content and licensed IP. And in earlier US jurisprudence, a copyright restriction on radio broadcast of a sound recording was construed as an 'equitable servitude on a chattel',[91] seeing the essential nature of the transaction as ownership of the physical object, while 'enjoyment of the possession of a physical copy of the recording was subject to continuing liability to the originator of the sound recording".[92]

The advent of digital technologies, and the trading in digital copies of copyright works in particular, inevitably leads to a recalibration of the market and a redefinition of the relationship between content producer, downstream trader and consumer. How should the treaty negotiator, the domestic legislator, the court respond? Is this a technical matter of applying established principles in a novel context, or are new or adjusted principles needed? The approach taken to the exhaustion of rights over purely digital content provides an instructive test case: does the right holder have a different entitlement to reach through the original transaction and to control downstream distribution, depending on whether the content is carried on physical media or is despatched as bundles of data on a packet-switching network?

On-demand delivery of digital copies of copyright material was not directly addressed in the TRIPS negotiations, which had concluded effectively in 1991, given the acknowledged lack of awareness among negotiators as to the impending impact of the internet on the content industries. Thus, how to regulate on-demand delivery of protected works, performances and sound recordings became a central issue in the work at WIPO, which resulted in the adoption of the two new copyright treaties in December 1996, the WCT[93] and the WPPT[94]. The principal purpose of these so-called "Internet Treaties" was to adapt international rules for the protection of copyright and the rights of performers and producers of sound recordings to the digital revolution, in particular, the distribution of copyright material over the Internet.

WCT Article 8 on "Right of Communication to the Public" is the most important element in the WCT building on the platform established by TRIPS. It is intended to cover on-demand delivery of protected works over the Internet, a scenario captured in the carefully negotiated wording "the making available to the public or their works in such a way that members of the public may access these works from a place and at a time individually chosen by them". The Basic Proposal for the

[91] *Waring v. WDAS Broad. Station Inc.*, 194 A. 631, 638 (1937).

[92] Antony Taubman, 'TRIPS encounters the internet: an analogue treaty in a digital age, or the first Trade 2.0 Agreement?' in Mira Burri and Thomas Cottier (eds.), Trade Governance in the Digital Age, (Cambridge, 2015), at 314

[93] WIPO Copyright Treaty (adopted in Geneva on December 20, 1996, entry into force on March 6, 2002)

[94] WIPO Performances and Phonograms Treaty (adopted in Geneva on December 20, 1996, entry into force on May 20, 2002)

WCT[95] (circulated in advance of the diplomatic conference that adopted the treaties), when commenting on the text that emerged as Article 8, explained the different scope and effect of the distinct rights of communication and of distribution:

> It should be pointed out that no rights are exhausted in connection with communication to the public. Should communication of a work result in the reproduction of a copy at the recipient end, the work may not be communicated further to the public or distributed to the public without authorization. Exhaustion of rights is only associated with the distribution of tangible copies.[96]

The text of the provision as contained in the Basic Proposal was adopted without any changes, and a similar approach was followed in WPPT Articles 10 and 14 (which deal respectively with the analogous right of making available of fixed performances and phonograms). The 2012 Beijing Treaty on Audiovisual Performances in its Article 10 (Right of Making Available of Fixed Performances) extended this right also to performers of performances fixed in audiovisual fixations. The overall effect is to create different conditions for the further sale of IP-protected content, depending on whether it is provided as a distribution or a communication.

At the level of domestic jurisprudence, the European Court of Justice (ECJ) has concluded that 'exhaustion of right applies to the tangible object into which a protected work or its copy is incorporated if it has been placed onto the market with the copyright holder's consent'.[97] However, further commercial use – in this case, transfer to a new medium – is still caught by the copyright owner's rights, as it amounts to a new form of commercial use not covered by the original copyright licence.

A more recent ECJ decision considered the implications of the distinction between physical and digital transmission of copyright works. The *Tom Kabinet* case[98] concerned a system of trading in e-books, which entailed selling second-hand e-books which had been legitimately purchased from the publishers. In addressing whether the purchaser of an e-book was entitled to resell it in this way, the case turned on whether, in the terms of Directive 2001/29/EC (the Infosoc Directive, which directly applied the WCT terminology) the supply of an e-book was a "distribution to the public", akin to the second-hand sale of a physical book (implying exhaustion of rights associated with the further sale, since it was assumed that the rightholder received sufficient remuneration from the first sale), or a "communication to the public" (for which the WCT had expressly precluded exhaustion of rights) – in the latter case, the first sale of the e-book would not bring with it the entitlement of the purchaser then to sell the e-book to a third party.

The ECJ concluded that "the supply to the public by downloading, for permanent use, of an e-book is covered by the concept of 'communication to the public' and, more specifically, by that of 'making available to the public of [authors'] works in such a way that members of the public may access them from a place and at a time individually chosen by them''. This ruled out the exhaustion of rights following the initial supply of the e-book. The court's decision was based on its interpretation of the InfoSoc Directive, but was supported by policy considerations that emphasized the distinct economics of trade in hard copies and in e-books. Thus the court analysed both the WCT and the *travaux préparatoires* of the Infosoc Directive itself to conclude that the legislators had intended the rule of exhaustion to apply only to distribution of tangible objects incorporating the copyright work, such as printed books on a material medium, and not to the on-line communication of works:

> interactive on-demand transmission was a new form of exploitation of intellectual property, in relation to which the Member States were of the view that it should be covered by the right to control communication to the public, while stating that it was generally accepted that the distribution right, which applies exclusively to the distribution of physical copies, does not cover such transmission.[99]

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[95] WIPO, Basic Proposal for the Substantive Provisions of the Treaty on Certain Questions Concerning the Protection of Literary and Artistic Works to be Considered by the Diplomatic Conference, document CRNR/DC/4 (August 30, 1996)

[96] Ibid. para. 10.20

[97] *All Posters*, C-419/13, 22 January 2015, curia.europa.eu/juris/liste.jsf?num=C-419/13.

[98] European Court of Justice, Decision of 19 December 2019, C-263/18 - Nederlands Uitgeversverbond et al v Tom Kabinet Internet BV et al. ('Tom Kabinet')

[99] Ibid, para 43

The court set out the policy distinction between digital and material supply of books in these terms:

> The supply of a book on a material medium and the supply of an e-book cannot, however, be considered equivalent from an economic and functional point of view. … dematerialised digital copies, unlike books on a material medium, do not deteriorate with use, and used copies are therefore perfect substitutes for new copies. In addition, exchanging such copies requires neither additional effort nor additional cost, so that a parallel secondhand market would be likely to affect the interests of the copyright holders in obtaining appropriate reward for their works much more than the market for second-hand tangible objects, contrary to the objective [of establishing a high level of protection of authors, allowing them to obtain an appropriate reward for the use of their works, including when a communication to the public takes place].[100]

The result had been different in an earlier ECJ case addressing digital exhaustion, the *UsedSoft* case, which turned on whether digital copies of software, legitimately purchased as downloads (not on physical media such as discs), could be resold to third parties. In that case, the court had concluded that the right of distribution could be exhausted when the software is sold either on a physical carrier medium (such as a CDROM) or as a software download with an unlimited period of use:

> the right of distribution of a copy of a computer program is exhausted if the copyright holder who has authorised, even free of charge, the downloading of that copy from the internet onto a data carrier has also conferred, in return for payment of a fee intended to enable him to obtain a remuneration corresponding to the economic value of the copy of the work of which he is the proprietor, a right to use that copy for an unlimited period.[101]

It therefore concluded that

> An author of software cannot oppose the resale of his 'used' licences allowing the use of his programs downloaded from the internet. The exclusive right of distribution of a copy of a computer program covered by such a licence is exhausted on its first sale.

This would only apply, however, if the nature of the transaction was effectively a true sale of the program, with transfer of ownership, even if it was formally structured as the acquisition of an IP licence. The transfer, thus, must be definitive, in that the transferor (or first proprietor) must delete the original copy, and the transfer must correspond with the same bundle of rights as initially transferred. The court cites a definition of a 'sale' as "an agreement by which a person, in return for payment, transfers to another person his rights of ownership in an item of tangible or intangible property belonging to him".[102]

The *Tom Kabinet* decision explains why the outcome is different for computer programs as against ebooks. Computer programs are dealt with by a *lex specialis*, the Computer Programs Directive 2009/24, which expressly provided for exhaustion of rights regardless of whether computer programs are supplied as downloads or in tangible form. It found that it was "abundantly clear the intention of the European Union legislature to assimilate, for the purposes of the protection laid down by [the Software Directive], tangible and intangible copies of computer programs." And, expounding the policy rationale for this distinction, it clarified that "from an economic point of view, the sale of a computer program on a material medium and the sale of a computer program by downloading from the internet are similar, since the online transmission method is the functional equivalent of the supply of a material medium. Accordingly, interpreting Article 4(2) of Directive 2009/24 in the light of the principle of equal treatment justifies the two methods of transmission being treated in a similar manner." From a policy perspective, therefore, the court justifies the distinction in terms of the inherently different economic character of markets for books and for computer programs: books naturally deteriorate with further use and distribution, while computer programs do not. These considerations are assumed to be factored into the remuneration originally received by the rightholder upon the first sale. Thus, these contrasting decisions – applying different treatment to the extent to which two digital products can be further traded after purchase - hinge on interpretation of both treaty and statute, and on policy and economic rationale.

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[100] Ibid, para 58

[101] *UsedSoft,* C-128/11, 3 July 2012, available at curia.europa.eu/juris/liste.jsf?num=C-128/11

[102] Ibid, at 42

Within the domestic market in the United States, it is well established that physical copies of recorded music or of software, for instance on optical discs, can be sold on to third parties: the Supreme Court confirmed this in the two decisions discussed above, with reference to the restraints on the alienation of chattels. Digital files can be resold if they are carried on a physical platform such as an MP3 player.[103] But what if the IP content is not carried on a physical chattel?

The *ReDigi* case[104] dealt with the application of the US 'first sale' doctrine to a marketplace developed for the reselling of lawfully purchased and downloaded digital music files. ReDigi had developed a market for such files which operated by transferring files to the purchaser while deleting them from the seller's computer, so that after 'data migration' the seller would no longer retain a copy of the digital file that she had sold. US copyright law (USC Section 109(a)) sets out the 'first sale doctrine' as follows: 'the owner of a particular copy or phonorecord lawfully made under this title, or any person authorized by such owner, is entitled, without the authority of the copyright owner, to sell or otherwise dispose of the possession of that copy or phonorecord.'

The case therefore turned in part on whether reselling digital music files fell within this exception to copyright – in effect, whether the right to object to such reselling had been exhausted (as it undoubtedly has for copyright works sold on physical media). The trial court and appeals court considered a range of legal and policy questions in reaching the conclusion that such reselling, against the authority of the original right holder, was not permitted under US copyright law. In essence, the finding was that the data migration process necessarily entails making copies of the digital files, copies that are not authorized by the right holder. When the purchaser downloads a file to their data storage, that storage becomes a new, unauthorized phonorecord. A range of policy issues were raised by the defendants, and in amici briefs, notably on the economic benefits that would flow from an effective secondary market for digital files. The appeal court declined to venture into issues which it saw as policy questions to be settled by Congress, but nonetheless pointed out that 'the establishment of ReDigi's resale marketplace would benefit some, especially purchasers of digital music, at the expense of others, especially rightsholders, who, in the sale of their merchandise, would have to compete with resellers of the same merchandise in digital form, which, although second hand, would, unlike second hand books and records, be as good as new.'[105] Further, the court argued that a secondary market could be sustained by selling digital files on storage media such as thumb drives. But concerning a market purely in digital content as such, the court concluded that '[i]f ReDigi and its champions have persuasive arguments in support of the change of law they advocate, it is Congress they should persuade. We reject the invitation to substitute our judgment for that of Congress.'

The extent of 'digital exhaustion' – and the rationales for it to converge with or diverge from exhaustion of rights over content embedded in physical carrier media ('chattels') – are emblematic of the unresolved policy tensions for the IP system and international trade, in the light of the technology-driven trend towards a global marketplace for knowledge products, on the one hand, and the maintenance of territorially based systems for defining and giving effect to IPRs, on the other. Even as the US courts have favoured international exhaustion of IPRs when embedded in physical carrier media, potentially opening up international trade for such knowledge products in the form of a secondary market, the question of whether purely digital content can be traded the same way also appears to be unsettled, with divergent views in two major jurisdictions, the EU and the US. And the *ClearCorrect* case has shown the difficulty of defining the perceived boundaries, even within the law of one jurisdiction, of what can be construed as a traded article, when it is no longer necessary to rely on a physical carrier medium as a platform for valuable content to be traded internationally.

[103] U.S. Copyright Office, A Report of the Register of Copyrights Pursuant *§ 104* of the *Digital Millennium Copyright Act*, 2001, available at www.copyright.gov/reports/studies/dmca/sec-104-report-vol-1.pdf.

[104] *Capitol Records, LLC v. ReDigi Inc.*, No. 16-2321 (2d Cir. 2018), available at law.justia.com/cases/federal/appellate-courts/ca2/16-2321/16-2321-2018-12-12.html.

[105] *Plaintiffs-Appellees, 15 16 V. 17 18 ReDigi Inc., John Ossenmacher, Larry Rudolph, AKA Lawrence S. Rogel*, No. 16-2321, Document 188-1, p 34, available at www.supremecourt.gov/DocketPDF/18/18-1430/90519/20190304145955525_00000003.pdf.

6. UNBUNDLING THE PACKETS: ANALYSING THE IP DIMENSION OF TRADE IN DIGITAL PRODUCTS

6.1 'Big data' or small packages?

This paper has explored how rights over valuable intangible content can shape the nature and extent of markets both for physical media and for digital products. This interlacing of IP law and the law governing trade in goods means that decisions on the formulation and application of IP law and policy taken by trade negotiators, by legislators and by the courts can significantly shape the structure of domestic and international trade. We cannot therefore understand the nature of trade and the contemporary international marketplace without analysing the IP component, and the extent to which a licence or contract under an IP right defines the scope of legitimate trade in physical and digital products.

The most immediate observation that can be derived from the growth of trade composed essentially by IP licences is that it is erroneous to consider 'trade in bits' as simply a crossborder flow of packets of data analogous to the flow of containers of traded goods. Discussions about the trade policy implications of e-commerce have underscored the need to differentiate different forms of data flow. An examination of the characteristics of digital-enabled 'trade in IP', the trade in 'digital products' and digital 'deliveries' demonstrates the difficulties of defining, regulating, tracing and measuring such trade. Given the designedly dispersed character of the internet as a widely distributed packet-switching network, most digital products are not sent as a clear, bounded bodies of data in a single, discrete transmission over a dedicated, permanent connection between source and destination. The flow of data is complex, heterogenous in content, and subject to distinct legal constraints.

Consider the data packets involved in a single internet transaction over the purchase of a single downloaded song, app or e-book, by a consumer in one jurisdiction from a commercial site in another, non-contiguous, jurisdiction. These packets of data, all defined by the TCP/IP protocol, would typically include:

- data on available content for purchase from the site, and the applicable terms and conditions (information that is normally freely accessible to the public over the internet, although not all of it necessarily in the public domain);
- information concerning the purchaser, including personal details and credit card details (subject to privacy and confidentiality considerations);
- transmission from the purchaser to the supplier, for instance legally confirming adherence to licensing terms and conditions and ostensibly entering into a contract;
- metadata concerning the digital product or downloaded file;
- rights management information relating to copyright content (information which itself may be protected in accordance with the requirements of the WCT and similar standards in bilateral agreements); and
- the data packets constituting the actual digital file for which access and a licence to use have been purchased (normally the subject of IP rights or contractual obligations constraining its field of use and subsequent dissemination, copying and possibly onward sale, depending on the applicable exhaustion regime).

In a normal transaction – one of the uncountable billions of such transactions taking place each year – none of these data would pass from vendor to purchaser as a discrete bundle or package, or a single 'file'. Indeed, the very design and logic of the internet not only makes this unlikely, but also makes it difficult to predict just what pathway across the internet that individual packets of data would take. The digital product itself – such as the mp3 file, ebook file, – is dispatched through numerous data packets over the internet. These packets of digitised information may follow different routes to reach their destination, potentially passing through different territories, before being reconstructed within the digital device of the purchaser once the packets are all received. Thus the 'digital product' or 'delivery' referred to in recent trade agreements normally only exists in a coherent package in the memory of devices at either end of the transaction – plainly, none of the individual packets of data variously transmitted between the two end nodes will constitute transmission of the digital product or full delivery as such. Moreover, the transaction may entail a continuing right to download a purchased digital product perpetually, or for a distinct period or number of times.

What is ultimately significant, therefore, in understanding this transaction is not the complex and diverse flow of data packets, but rather the relationship between the purchaser and the vendor, and

the nature of the rights to use data that are transferred or licensed in this process and the limitations on those rights, and the transfer of ownership (if any), however ownership is construed.

It is natural to speak of having 'purchased' an ebook, a song, or an app; and some authors have argued that terms such as 'buy' or 'purchase', when applied to digital transactions, may be positively misleading.[106] And it is counterintuitive to suggest that the essence of the commercial transaction - the 'trade' – involving a digital product is not constitute the electronic transmission of data as such, but rather the legal relationship between purchase of a limited IP licence or contract. Yet even when 'analogue' transactions based on the purchase of physical carrier media, it was generally fallacious to assume that transfer of ownership of the physical platform – the book, the disc, the tape – brought with it unhindered rights to use the embedded content: for instance, purchase, and ownership, of a CD or DVD did not confer a right of public performance of the musical or cinematic work it carried. And the purchase of content in foreign jurisdictions also did not bring with it an entitlement to trade it in jurisdictions that applied national exhaustion to the exercise of IP rights, even when the content was embedded on a physical carrier medium, a chattel.

Thus, it is suggested that it is impossible to reach a clear understanding of the inherent characteristics of many digital transactions without information on the legal relationship, including IP licences and contractual undertakings, that is established between the supplier and the purchaser. While statistics may be relatively accurate, if never fully complete, for business to business transactions, it becomes extremely difficult to measure or even gauge the full extent of business to consumer licences for IP that number in the billions internationally within a host of different and evolving business models.

6.2 Shedding light: a quantum theoretical approach to IP?

The question of whether digital products should be classed as goods or services has not been definitively resolved at the multilateral level, whether by agreement or in the course of dispute settlement. The complex character of digital products, as outlined above, and the different categories of data despatched over networks, may give some illustration of the inherent difficulty in reaching a definitive position on this matter without considering the specific practical circumstances and legal context of digital products – just as the international despatch of some physical goods can yet be measured as part of services trade in some circumstances (as cited in section 2.1 above), when the legal character of the underlying transaction makes this the more appropriate choice. And, indeed, as noted, a number of recent trade agreements have defined and regulated 'digital products' expressly without taking a position on whether they should be classed as goods or services (section 4.2 above). Add to this complex analytical framework the differing potential effects of applicable IP rights and the shortcomings of an overly deterministic approach become evident. An improbable metaphor – that of the conception of light in quantum theory - may unexpectedly assist in creating a more enabling framework for understanding these diverse forms that IP may take in practice.

A central insight of the quantum theory view of light is wave-particle duality – light can exhibit the behaviour of both waves and of particles or packets ('quanta'), and may be observed and measured in either form. Concerning wave particle duality, Einstein and Infeld observed:

> It seems as though we must use sometimes the one theory and sometimes the other, while at times we may use either. We are faced with a new kind of difficulty. We have two contradictory pictures of reality; separately neither of them fully explains the phenomena of light, but together they do.[107]

Without placing *any* significant emphasis on this admittedly tenuous metaphor, it suggests an analogous way of viewing IP rights, and indeed the diverse packets of data that are despatched in association with the delivery of digital products. Rather than assuming one single, exhaustive position as to how to categorise the essential character of IP rights and digital products in today's technological and economic context and in a diversifying international trading system, it would be better to accept that they have a range of different properties in practice, which can be observed variously from different vantage points and will be more or less pertinent to the legal and commercial

[106] See, for instance, Aaron Perzanowski and Jason Schultz, note 60 *supra*, 84-101.

[107] Albert Einstein and Leopold Infeld, *The Evolution of Physics*, Cambridge: Cambridge University Press, 1938 at 278, available at https://archive.org/details/evolutionofphysi033254mbp/

context of trade. Hence, the grant, regulation and enforcement of the very same IP right may, in principle, be conceived in the international legal space as:

- a conditional exception to trade law disciplines, as a kind of behind-the-border domestic regulatory measure that may need to be justified under trade law as non-discriminatory and not trade-restrictive;
- a component of market access,[108] and a means of avoiding distortions to trade;[109]
- a determinant of the legitimacy of traded goods;[110]
- a tradable service in itself when service delivery entails the licensing of access to the IP;
- a tradeable good, to the extent that purchase of access to and delivery of the material covered by the IP right is deemed a 'good' as such;
- an avenue for cooperation in research and development, and a bespoke vehicle for transfer of technology;[111]
- an asset, the express subject of investment disciplines;[112]
- a component of and an obstacle to the exercise of human rights;[113] and
- as a subsidy.[114]

Physicists cannot directly observe fundamental particles, and can only understand their character by observing their behaviour. In a roughly analogous way, rather than first seeking to define the essence of an IP right in the international trade law and policy space, and then to work out towards its practical manifestations, it may be more illuminating instead to observe how IP rights behave in international commerce, and on that basis accept that – depending on the context and purpose of this observation. Thus, IP rights may manifest behaviour as:

- transacted property;
- traded goods;
- services;
- the subject of market regulation;
- an element of expectations of market access;
- the content of technology transfer or equitable sharing of benefits;
- investment assets;
- subsidies; or
- a constraint on trade, technology transfer or fair competition.

More succinctly, 'Old Town Road', the song discussed in the introduction above, exemplifies how music can manifest the characteristics of distinct categories, depending on the vantage point of the listener, without being solely confined to either category, as the songwriter observed: "It's not one, it's not the other. It's both."[115] In other words, rather than insisting on one exclusive categorisation, it may be both more practically useful and more empirically sound to observe its behaviour, and to use that understanding as the basis for drawing up new rules or updating old ones..

Whatever formal or legal overlay is applied to the new trading arrangements for IP, facilitated by new technologies, it is essential to build an understanding of their character, in part, as trade in IP licences as such, rather than viewing the IP component as an adjunct or ancillary element.

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[108] Economic and Trade Agreement between the Government of the United States of America and the Government of the People's Republic of China, January 2020, Article 2.1: Each Party shall ensure fair and equitable market access to persons of the other Party that rely upon intellectual property protection.

[109] Preamble, TRIPS Agreement

[110] Preamble, and Article 41, TRIPS Agreement

[111] Jayashree Watal, Letitia Caminero L. Least-Developed Countries, Transfer of Technology and the TRIPS Agreement. In: Correa C., Seuba X. (eds) Intellectual Property and Development: Understanding the Interfaces. Springer, Singapore, 2019.

[112] Lahra Liberti, L. "Intellectual Property Rights in International Investment Agreements: An Overview", OECD Working Papers on International Investment, 2010/01, OECD Publishing. http://dx.doi.org/10.1787/5kmfq1njzl35-en

[113] United Nations, Committee on Economic, Social and Cultural Rights, General Comment No. 17 (2005), The right of everyone to benefit from the protection of the moral and material interests resulting from any scientific, literary or artistic production of which he or she is the author (article 15, paragraph 1 (c), of the Covenant), E/C.12/GC/1712 January 2006

[114] DS353: United States — Measures Affecting Trade in Large Civil Aircraft — Second Complaint

[115] 'Lil Nas X Talks 'Old Town Road' and the Billboard Controversy' note 4 *supra*.

The implications for trade policy, and for economic and social development, are profound. In parallel with the TRIPS negotiations, and the contemporaneous invention of the World Wide Web, Paul Romer and other economists were addressing the need for economic growth theory to incorporate knowledge, technological knowhow and human capital as endogenous factors, rather than maintaining it as exogenous to models of growth. The resultant 'endogenous growth theory' recalled the importance for human development and economic growth of the institutions and policy settings that promote the development and dissemination of new knowledge. As Romer expressed the analytical task in these terms when accepting the 2018 Nobel Prize for Economics:

> The human condition emerges from a never-ending contest between the dismal Malthusian economics of objects and the unrealized possibilities of the economics of ideas. For centuries, economists took sides and followed Thomas Malthus. A paper I published finally turned it into a fair fight. Economists no longer have to assume that Malthus wins before exploring the question posed by title I chose for my Nobel lecture: "On the possibility of progress." … In my paper[116]… all I did was make the trivial observation that ideas belong to neither of the standard analytical categories: private goods and public goods. … I showed that this observation has consequences; big consequences; the biggest possible consequences. The unique characteristics of ideas make material progress possible, but that's not all. Ideas matter not just for what humans have, but also for how they are. During the Pleistocene, human nature evolved in a Malthusian world of objects. We developed an ugly tendency to split humanity into "us" and "them." A world that also includes ideas justifies a new mindset that treats all humans with the dignity and respect that we offer to "us." It is a world in which we may derive net material benefits from the presence of others.[117]

Romer has argued that endogenous growth theory enables a shift from the zero-sum mindset that is focused on the inherently rivalrous domain of atoms, and an acceptance of mutual interest in a positive-sum conception of human progress and economic growth – recalling the 'mutual interest' that the TRIPS Agreement itself sets as an objective for the IP system in its Article 7.

Trade law and trade policy has conventionally viewed the operation IP rights as, in effect, exogenous. The shifting contours of trade in knowledge – the emergence of widespread trade in IP rights as such, as traded content is detached from chattels, and the integral and essential role of IP licensing in defining and enabling knowledge flows though dispersed global value chains – suggest that trade policy analysis must similarly work to incorporate an understanding of the IP dimension of cross-border commercial exchanges as an integral element of trading relations. This means treating the exchange and licensing of IP rights systematically and effectively as 'endogenous' to trade. Such a shift in framing the 'trade-related aspects' of IP – turning instead to consider the IP-related aspects of trade - is essential for an accurate empirical picture of trade relations today, especially given the economic significance both of dispersed global value chains and of trade in 'pure' IP content as such particularly in the creative sectors.

To work towards such understanding is not an abstract or academic exercise. It is, for instance, essential if developing countries are to benefit from knowledge spillovers from their engagement in global value chains. And it is essential to the creation, evolution and regulations of global digital markets that would enable fair and feasible access to creators across the globe, most critically from developing countries and from LDCs. For instance, the recent ITC report *Creative industries in Rwanda: Digital paths to global markets* identifies the remarkable opportunities offered the Rwandan cultural industries that have been opened up by the evolution of digital trading platforms, while identifying "common challenges for small businesses exporting creative products and services in developing countries ….[including] the need for fair revenue sharing with artists; [and] access to, and costs of, operating on global platforms". For instance, concerning sustainable development of the creative industries:

> Creative industries involve a complex network of artists, creators, producers, distributors, platforms and intermediaries. Fair sharing of revenue has been a critical issue, as artists and creators are often individuals or small businesses and have less bargaining power against the networks and platforms that often dominate the distribution channels. Digitization is exacerbating this problem, as 'winner-take-all' is a common strategy for digital companies.

[116] Paul Romer, 'Endogenous Technological Change' *Journal of Political Economy*, Vol. 98, No. 5, Part 2: (Oct., 1990), pp. S71-S102

[117] Paul Romer, *Nobel Lecture: On the possibility of progress* (February 5, 2019), at https://paulromer.net/prize/

This report calls for "policymakers and industry players to take action to ensure inclusive and sustainable development of the creative sector."

Romer, in one of his breakthrough papers, underscored the importance of integrating the knowledge component of economic growth into wider policy development in these terms:

> We will be able to rejoin the ongoing policy debates about .... the feedback between trade policy and innovation, the scope of protection for intellectual property rights, the links between private firms and universities, the mechanisms for selecting the research areas that receive public support, and the costs and benefits of an explicit government-led technology policy…. In a developing country like the Philippines, what are the best institutional arrangements for gaining access to the knowledge that already exists in the rest of the world? In a country like the United States, what are the best institutional arrangements for encouraging the production and use of new knowledge?[118]

Those concluding observations, published the very year the TRIPS Agreement was concluded, seemed to make the assumption – perhaps better empirically grounded at the time – that a stark distinction existed between the interests of a country like the Philippines which is seen in this case entirely as a recipient, as a beneficiary of other people's technology or knowledge, and a country like the US which is seen as the source of innovation for others. Today's international knowledge economy is more heterogeneous and less polarised, as many developing countries work their way up the ranks of innovative capacity, strengthen their indigenous innovation capacity and recognize and value traditional knowledge systems. The consequential value is all the more evident, then, of building the IP dimension integrally into trade policy, in a coherent, inclusive and empirically up to date manner.

[118] Paul Romer, 'The Origins of Endogenous Growth', Journal of Economic Perspectives, 8(1) 1994, 3-22, at 22.

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