



## **Intellectual Property and Electronic Commerce: Proposals in the WTO and Policy Implications for Developing Countries\***

**By Vitor Ido\*\***

### **THE MANDATE OF WTO ON ELECTRONIC COMMERCE**

The second World Trade Organization (WTO) Ministerial Conference held in 1998 adopted a Declaration on Global Electronic Commerce, which called for the establishment of a work program on e-commerce. This work program was adopted in September 1998 and was extended periodically by subsequent WTO Ministerial Conferences. The latest extension of the work program on e-commerce was made by the WTO Ministerial Conference in Buenos Aires in 2017. The WTO General Council periodically reviews the work program based on reports from WTO bodies responsible for implementing the program. Four WTO bodies were charged with the responsibility of carrying out the work program: the Council for Trade in Goods, the Council for Trade in Services, the Council for TRIPS (Agreement on Trade Related Aspects of Intellectual Property Rights) and the Committee for Trade and Development. The work program instructed the TRIPS Council to examine and report on intellectual property (IP) issues arising in connection with e-commerce. It was specified in the work program adopted in 1998 that the issues to be examined would include protection and enforcement of copyright and related rights and trademarks, new technologies and access to technology.

IP related issues pertaining to e-commerce have been discussed in the TRIPS Council under the miscellaneous agenda item “any other business”.

E-commerce had regularly featured on the agenda of each TRIPS Council meeting from 1998 to June 2003, and the Council had produced three reports to the General Council, which had reflected the view among Members that, given the novelty and complexity of the intellectual property issues arising in connection with electronic commerce, continued further study was needed.

In response to a request by the TRIPS Council in December 1998, the Secretariat had also prepared a factual background note and addendum that examined the provisions of the TRIPS Agreement relevant to the Work Program on Electronic Commerce and relevant activities in other intergovernmental organizations (IP/C/W/128 and Addendum 1).

From 1999 to 2001 the following broad proposals were advanced by developed countries in the TRIPS Council: 1) proposal by Switzerland (IP/C/W/286) on the need to discuss the extent to which TRIPS would be applicable to e-commerce, including rights of the author in the Internet; 2) proposal by Australia (IP/C/W/233) identifying future issues, including patentability of new technology business methods, harmonization of copyrights, internet

### **Abstract**

This policy brief explains the mandate of the World Trade Organization (WTO) on electronic commerce under the work program on e-commerce, which was adopted by the WTO Ministerial Conference in 1998 and periodically renewed by subsequent Ministerials. It describes what has taken place on intellectual property related issues pertaining to e-commerce in the WTO TRIPS (Agreement on Trade Related Aspects of Intellectual Property Rights) Council. It also summarizes various proposals and suggestions that have been advanced in the Council since the Nairobi Ministerial Conference in December 2015 as well as recent proposals that have been advanced in the General Council until December 2018, some of which contain specific intellectual property (IP) related issues. As part of the recently launched plurilateral negotiations on e-commerce, a forum that is likely to become more prominent for this discussion, proposals have been re-submitted in March 2019, as well as others which have been tabled in April and May 2019. Finally, this brief presents an explanation of how IP issues may also affect other elements of e-commerce and the digital economy. Such issues are not the subject of existing proposals in the WTO, but may feature in future discussions.

\* There is an annex to this policy brief which contains a table with all the e-commerce proposals submitted to the WTO and their content (IP related or not). Please find the annex here: <https://www.southcentre.int/policy-brief-62-june-2019/>.

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domain names and enforcement of IP; 3) proposal by the European Union (EU) for further studies on IP and e-commerce, such as its new potentials and new challenges (IP/C/W/224); 4) proposal by the United States (US) (IP/C/W/149) on emerging issues of IP and e-commerce, including enforcement, extension of copyright protection and choice of law.

No discussion on e-commerce related issues took place in the TRIPS Council since the Cancun Ministerial Conference in 2003 till the Nairobi Ministerial Conference in 2015. Some members submitted proposals for discussion on e-commerce to the TRIPS Council in 2016 after the decision by the Nairobi Ministerial Conference to continue the work program of e-commerce based on its existing mandate and guidelines. The TRIPS Council Chair reported to the General Council that during 2016 and 2017, there was discussion on new proposals related to IP and e-commerce, but no decisions were taken on this regard. These discussions were held as an *ad hoc* agenda item, as e-commerce is not a standing agenda item of the TRIPS Council.

The Buenos Aires Ministerial Conference in 2017 agreed to continue the work under the Work Programme on Electronic Commerce, based on the existing mandate (as set out in WT/L/274), and instructed the General Council to hold periodic reviews in its sessions of July and December 2018, as well as in July 2019. In their reports to the General Council, none of the councils reported any specific discussions on IP aspects of e-commerce. Accordingly, the report by the chairperson of the General Council (WT/GC/W/756, dated 17 December 2018) did not address specific IP issues pertaining to e-commerce.

During the TRIPS Council November 2018 session, e-commerce was included as an *ad hoc* agenda item, but no delegation took the floor. In that session, the Chair noted the absence of discussion and noted the possibility to include it in the next session. In the last TRIPS Council (February 2019), e-commerce was not on the agenda.

The fact that the TRIPS Council is not actively discussing or negotiating issues in relation to IP and e-commerce, reflects a lack of consensus by the WTO membership to do so, at this time. It may also reflect that some members have greater interest in advancing their proposals on IP and e-commerce through the venue of the recently launched plurilateral negotiations on e-commerce.

In a Joint Statement (WT/L/1056, dated 25 January 2019) 76 WTO members reaffirmed their intent to proceed with negotiations on e-commerce. These negotiations on e-commerce will likely include IP-related aspects.

The content of the proposals on e-commerce in the WTO since 2015 is an indication of what will be negotiated as part of the plurilateral initiative.

## **SUBMISSIONS TO THE TRIPS COUNCIL AFTER THE NAIROBI MINISTERIAL CONFERENCE**

Since the decision by the Nairobi Ministerial Conference in December 2015 to continue the work program on e-commerce, a number of submissions had been made to the TRIPS Council from 2016-2018. These are as follows:

- Joint communication from Argentina, Brazil and Paraguay (JOB/IP/20) relating to developments within the MERCOSUR on the legal recognition of electronic documents, electronic signatures and advanced electronic signatures. The submission, made in December 2016, shares information about the MERCOSUR resolution GMC 37/06 which establishes a regime of mutual recognition of e-signatures and digital certificates granted by certification service providers. Certification service providers are allowed to collect personal data only directly from the person to which such data refers and with their express consent, and only to the extent such data is necessary to issue and maintain the digital certificate.

- Proposal by Canada (IP/C/W/613) for an ad-hoc agenda item to the June 2016 meeting. Canada proposed to undertake an exchange of views on themes related to IP and e-commerce which may be of interest to the least developed, developing and developed countries (IP/C/613/Add.1). Canada also proposed an exchange of views by the TRIPS Council membership on the desirability of a dedicated standing TRIPS Council agenda item on the Work Program on Electronic Commerce or an alternative option such as ad hoc discussions.

- Communication by Brazil (JOB/IP/19) submitted in March 2016 relating to areas for developing shared understandings on the issue of national copyright systems in the digital environment. The proposal focuses on the management of copyright in the digital environment towards the fair payment for authors and performers, and calls upon WTO Members to stress the increased importance of the principle of transparency in the remuneration of copyright and related rights in the digital environment. The proposal also calls upon WTO members to assert the principle that copyright exceptions and limitations available in physical formats should also be made available in the digital environment and the use of exceptions and limitations should not be constrained by technological protection measures. Finally, the proposal calls for reaffirming the territoriality of copyright in the digital environment as a principle of the international trading system.

- In July 2016, Brazil submitted a non-paper to the WTO General Council (JOB/GC/98) which called for the protection of copyright and authors' rights in conformity with the Berne Convention for the Protection of Literary and Artistic Works and the TRIPS Agreement in light of the new technologies provided by the digital environment such as streaming and cloud uploading.

- Joint communication from Canada, Chile, Colombia, Côte d'Ivoire, the EU, Republic of Korea, Mexico, Moldova, Montenegro, Paraguay, Singapore, Turkey and

Ukraine (JOB/IP/21/Rev2) submitted in January 2017 presents a mapping of trade related elements that are relevant for e-commerce. The mapping includes trade aspects of intellectual property rights (IPRs) as one of the regulatory issues relevant to e-commerce and generally asserts the importance of IP protection and enforcement as a component of e-commerce and digital economy discussions. No specific IP issue is raised.

- Communications from Chinese Taipei (JOB/IP/24, JOB/IP25) submitted in June 2017 state that e-commerce environment should become a new topic for discussion only if qualitatively different new problems arise which cannot be dealt with satisfactorily in the original articles and rules in the General Agreement on Tariffs and Trade (GATT), General Agreement on Trade in Services (GATS) or TRIPS. They state that protection of privacy, IP, public morals or national security are frequently-cited reasons for imposing domestic Internet regulations. Accordingly, the submissions called for further discussion in relevant WTO bodies on these issues. However, no specific IP issue was raised for discussion.

- Communication from Brunei, Colombia, Costa Rica, Hong Kong (China), Israel, Malaysia, Mexico, Nigeria, Pakistan, Panama, Qatar, Seychelles, Singapore and Turkey (JOB/IP22) submitted in February 2017 does not make any mention of TRIPS or IP issues relating to e-commerce.

- Communications from Chinese Taipei (JOB/IP/29, JOB/IP/30) submitted in February 2018 call for future discussion in WTO on cyberspace trade barriers, e-commerce and taxation and 3D printing. No specific IP issue was raised.

## **RECENT PROPOSALS IN THE GENERAL COUNCIL**

- Communication from Argentina, Colombia and Costa Rica (JOB/GC/174) states that a negotiating agenda on e-commerce should encompass all relevant WTO disciplines, clarify existing WTO disciplines and establish new rules where necessary. No specific IP issues are identified in this submission, but IP aspects can be explored under this approach.

- Communication from New Zealand (JOB/GC/175) calls for clarifying existing rules and developing additional rules on the trade-related aspects of electronic commerce at the WTO. No specific IP issues were been identified.

- Communication from Brazil (JOB/GC/176) reaffirms the copyright related issues pertaining to e-commerce raised in the submission by Brazil in the TRIPS Council in March 2016 (JOB/IP/19).

- Communications from Japan (JOB/GC/177, JOB/GC/180) suggest that WTO Members should agree to set clear administrative due processes for government intervention with regard to disclosure of information by businesses relating to their customer data and trade

secrets, and governments should follow due process when accessing trade secrets. They also raise concern about the risk of leakage of trade secrets through legal requirements in some countries for disclosure of source codes and algorithms and suggest that such disclosure requirements should be treated as trade barriers, except if they are imposed for legitimate public policy objectives. However, what the legitimate public policy objectives are is undefined. The submissions also call for prohibition of requirements by governments to use particular technologies, including encryption technologies. These elements have not been raised for discussion in the TRIPS Council yet.

- Communication from the US (JOB/GC/178) calls for rules in the WTO to ensure that firms are not required to share their trade secrets, source codes or algorithms as a condition for market access, or to transfer technology, or to use a national technology as a condition for market access, as well as to comply with country specific encryption standards.

- Communication from Singapore (JOB/GC/179) does not make any IP related suggestion.

- Communication from Russia (JOB/GC/181) generally calls for exploration of application of traditional rules of IP to e-commerce.

- Communication from Chinese Taipei (JOB/GC/182) calls for general clarification of circumstances under which regulatory measures pertaining to e-commerce can be applied, legitimate public policy objectives that may be pursued through such regulatory measures, and non-discriminatory application of regulatory measures. No specific IP issue is raised in the communication.

- Communication from Cambodia and Japan (JOB/GC/185) - No IP issue suggested.

- Communication from the European Union (JOB/GC/188) presents a number of issues that, in its views, would enable an environment favorable to electronic commerce, making however no specific reference to IP.

- Communication from Canada (JOB/GC/189) delineates market access elements related to e-commerce, but mentions no IP-related themes.

- Communication from the Russian Federation (JOB/GC/190) expands proposals made on JOB/GC/181 in the field of consumers' confidence. No references to IP.

- Communication from the European Union (JOB/GC/194) focuses on telecommunications regulation and does not address IP per se. However, some of these measures may be surrounded by IP issues, particularly competition in the field, which may be hampered by certain abuses of IP.

- Communication from Ukraine (JOB/GC/198) supports a discussion on increasing transparency in the remuneration of copyrights and related rights in the digital environment and on improving the business environment by reaffirming the territoriality of copyright. It further

supports the prohibition of disclosure of trade secrets, source codes and proprietary algorithms.

- Communication by Australia (JOB/GC/199) brings no specific IP topics.

- Communication from Brazil and Argentina (JOB/GC/200/Rev.1) reaffirms the areas stated in JOB/IP/19 (transparency, jurisdiction and balance of rights and obligations), providing a few new inputs: (i) the need of a transparency principle on copyrights and related rights in the digital environment, given the lack thereof on how royalties are calculated and the existing asymmetry of information; (ii) territoriality of copyright laws, being the applicable law that of where the content is accessed, while reaffirming the possibility of exhaustion of IPRs under Article 6 of TRIPS; (iii) extension of exceptions and limitations to the digital environment, possibility to develop new exceptions and limitations to copyrights and related rights to the digital environment (if compliant with Article 13 of TRIPS), and exception and limitation for beneficiaries in legislations where there is specific protection against the circumvention of technological protection mechanisms.

- Communication from Brazil (JOB/GC/203) presents some non-exhaustive text-based examples of various topics of the delegation's positions. This includes, in the copyright field, the topics mentioned in JOB/GC/200/Rev.1. Data privacy and competition are among other topics.

## **RECENT PROPOSALS TO THE E-COMMERCE PLURILATERAL INITIATIVE**

The abovementioned proposals to the General Council have been re-submitted to the plurilateral initiative at WTO on 25 March 2019. In April and May, a number of new proposals have been submitted, most of them referring to Members' previous positions. These are:

- Communication from China (INF/ECOM/19) presents the goals and action areas of the plurilateral initiative on e-commerce. It deals with a number of issues including electronic signatures and electronic contracts. It argues for the respect of internet sovereignty and recognizes divergence of countries and their specific development conditions, calling for respect of countries' specific approaches in areas such as privacy, data safety and cybersecurity. No specific proposals on IP are mentioned.

- In a further communication (INF/ECOM/32), China proposes a draft text that does not include localization of clouding services and/or source code protection.

- Communication from the United States of America (INF/ECOM/23) proposes a draft WTO Agreement on Digital Trade. It contains a prohibition on data localization requirement (Article 9) and on transfer of or access to source code of software or algorithm expressed in such source code (Article 12). It also provides non-liability of supplier or user of interactive computer ser-

vice, but creates an exception for intellectual property rights (Article 13.4).

- Communication from the European Union (INF/ECOM/22) presents a draft text that includes prohibition of transfer or access to source code, making clear it does not prejudice protection and enforcement of IPRs (2.6, par. 3). It also proposes a prohibition of data localization requirements. The EU also addresses a revision of the WTO reference paper on telecommunication services, including essential facilities.

- Communication from New Zealand (INF/ECOM/21) focuses on consumer protection, without specific mentions to IP.

- Communication from Japan (INF/ECOM/20) also presents a draft text, dealing with taxation, electronic authentication and signatures. It proposes a ban on localization requirements and on source code transfer/access. The proposal also prohibits access or transfer on cryptography technologies. It does not refer directly to IP.

- Communication from the Separate Customs Territory of Taiwan, Penghu, Kinmen and Matsu (INF/ECOM/24) deals with cross-border transfer of information, open internet access, and market access and national treatment. It does not address IP.

- Communication from Hong Kong, China (INF/ECOM/26) deals with the broad framework, but does not address IP.

- Communication from Singapore (INF/ECOM/25) presents a number of topics, and while it proposes a prohibition on access/transfer of source code, it does recognize the legitimacy of data localization requirements.

- Communication from Ukraine (INF/ECOM/28) also proposes a ban on data localization requirement and access/transfer of source code. When referring to source code, it explicitly affirms the protection of enforcement of intellectual property rights.

- Communication from the Republic of Korea (INF/ECOM/31) presents a draft text, in which IPRs are considered as part of "investment" for the ends of the agreement. It proposes the prohibition of data localization requirements and access or transfer to source codes.

- Communication from Canada (INF/ECOM/30) introduces draft text focusing on custom duties and electronic authentication and signatures. It does not deal with IP.

- Communication from Canada (INF/ECOM/29) points out online consumer protection, personal information protection, unsolicited commercial electronic messages and cooperation as fields of relevance, proposing the recently signed Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) and the United States-Mexico-Canada Agreement (USMCA/CUSMA) as a basis for the e-commerce plurilateral. Both contain a number of TRIPS Plus provisions, including in their e-commerce chapters.

- Communication from Brazil (INF/ECOM/27) presents, among others, the issue of restriction of competition, consumer protection and personal data protection. It includes a provision on general exceptions that include measures to protect public morals or to maintain public order, as well as safety, among others.

## **SCOPE AND IMPLICATION OF THE PROPOSALS**

Even though many of the recent proposals on e-commerce that have been advanced do not directly address IP issues, they often make reference to exceptions to free flow of information to allow IP protection and could also be applicable to technologies (e.g. machine learning) that could be protected by IP rights. On the one hand, industrialized countries are pushing for free transmission of data and information, including the prohibition of national localization requirements and government use of data, while on the other hand they are concerned about the increasingly difficult enforcement of IP rights in digital economies, leading to a push for both more legal protection (such as for source codes, algorithms, Internet of Things and encrypted technologies) and higher standards of enforcement through various mechanisms (such as broader protection of trade secrets, IP protection as justification for data localization, etc.). It is noteworthy that in some free trade agreements (FTAs) it has been proposed to introduce a restriction on the ability of governments to restrain the cross-border flow of data (Article 14.11 of the CPTPP, for example).

Recent proposals by US and Japan have specifically identified two IP issues - a) prohibition of any domestic rule requiring the disclosure of trade secrets, particularly source codes and algorithms, and b) any requirement for firms to use particular encryption technologies as a condition for market access. Such rules in the WTO can have significant implications. Website features such as confidential graphics, source codes, object codes, algorithms, programs or other technical descriptions, data flow charts, logic flow charts, user manuals, data structures and database contents may be protected as trade secrets. The CPTPP agreement contains a provision that prohibits governments of signatory countries from asking software companies for access to their source codes. Similar provisions have been proposed in other agreements such as the Trade in Services Agreement (TiSA) and Regional Comprehensive Economic Partnership (RCEP).

In short, these proposals, and their overarching approach, if adopted, may significantly reduce the policy space of developing countries in creating a sustainable and promising environment for e-commerce businesses. For instance, if certain algorithms or source codes are protected by patents – and possibly by other IPRs as well (see below also) – the coverage of such protection may create a disincentive that impedes new companies to enter those markets. In many cases, even fully lawful new business models in e-commerce could suf-

fer claims of infringement and would not be able to bear litigation costs against large foreign companies. Also, if localization requirement policies, which are in full compliance with WTO provisions and which may also have national security implications, are seen as a trade barrier *per se*, they may substantially impede the development of certain data-intensive industries and also favor those who already hold large amounts of data.

There is a need to promote a more comprehensive and clear approach whereby countries are fully aware of the development and policy implications of IP-related issues of e-commerce. Thus, proposals, like the Brazilian one, for ensuring remuneration of authors and creators through access to their works on online platforms, as well as facilitating the recognition and implementation of copyright exceptions and limitations in the digital domain mirror development issues that have been raised in the World Intellectual Property Organization (WIPO).

## **HOW CAN IP AFFECT E-COMMERCE AND THE DIGITAL ECONOMY IN DEVELOPING COUNTRIES**

This section briefly discusses how IPRs may apply to elements of e-commerce and the digital economy. It should be noted that there are no specific proposals in the WTO TRIPS Council, the General Council or the plurilateral negotiations in relation to most of these elements.

It is noteworthy that e-commerce discussions, including its IP-related dimensions, have become an ever-growing topic across international organizations and national/regional instances. The issue is among the most contentious in the current WTO negotiations, with relevant divergence among WTO members. Even though IP is not at the core of these discussions, there are various fields of entanglement and, furthermore, cross-cutting analyses that *include* IP, which may all become more and more important.

Moreover, e-commerce is an important part of discussions in multi stakeholder forums such as the Internet Governance Forum (IGF). Various panels and discussions on e-commerce were also part of the WTO Public Forum and the World Investment Forum. The topic also merits specific programs or divisions at organizations such as the International Telecommunication Union (ITU) and the United Nations Conference on Trade and Development (UNCTAD). The United Nations Secretary-General's High-level Panel on Digital Cooperation, established in 2018, does not have a specific mandate to discuss e-commerce, but has had it in its sight. Current regional norms, such as Europe's General Data Protection Regulation (GDPR) and the new EU Copyright Directive have direct and indirect extraterritorial effects that entangle data privacy, copyright protection and e-commerce to the extent which they may hamper, foster or provide incentives and disincentives to platforms and businesses working in the field of e-commerce. Therefore, albeit not necessarily directly involved in the scope of the current discussions in the WTO on e-commerce, it is important to take note of these other

developments, particularly as they might point to the direction in which trade negotiations on IP and e-commerce are likely to be heading.

Apart from the elements pointed out by the above-mentioned proposals, IPRs may also affect the following aspects of e-commerce:

- E-Commerce systems, search engines or other technical Internet tools (many in the form of algorithms or source codes) may be granted protection under patents (particularly in the USA under the 'utility' standard, where additionally e-commerce business models may also be patented).

- Software including the text-based HTML code which is used in websites is protectable under copyright (patents may be obtained in the USA).

- Website design may be protected under copyright or industrial design laws.

- The website content in the form of written material, photographs, graphics, music and videos are protected under copyright.

- Original databases may be protected by copyright (and by a sui generis database regime in Europe, even if not original).

- Business names, logos, product names, domain names and other signs posted on the website may be covered under trademarks.

- Computer generated graphic symbols, displays, graphical user interfaces (GUIs) & even webpages may be protected under industrial design law or copyright.

- Website features (confidential graphics, source code, object code, algorithms, programs or other technical descriptions, data flow charts, logic flow charts, user manuals, data structures and database contents) may be protected as trade secrets.

One of the main IP issues in relation to e-commerce is the liability of intermediaries for illegal activities (e.g. sale of counterfeit products, transmission of unauthorized copies of copyrightable works). Intermediaries are generally exempted from liability if they do not know about the illegal nature of the activities and take measures to prevent them when required by competent authorities.

On a related topic, the new European Union Directive on copyrights, which was approved by the Council of the European Union on 15 April 2019, represents a major shift by creating the obligation for platforms to respect copyrights. Discussions have focused on limitations on quotations and on the need to impose a content filter in order to avoid copyright infringement, despite the existence of certain exceptions and limitations such as educational uses. Even if the territorial scope of protection is the EU jurisdiction, this may become – akin to the also recent GDPR – a new global norm-setting at least for all economic actors wishing to

undertake any kind of business in the EU market. Developing countries may ponder whether these rules should be applied in their own national and regional legislations, particularly whether these norms could or not impact their own e-commerce platforms, as well as broader interests of access to knowledge, culture, and education.

It is to be noted also that the level of protection to trade secrets and unfair competition has been expanded in a number of jurisdictions, including the United States and the European Union. Cross-border litigation on this matter is also likely to increase in e-commerce transactions. On the other hand, competition law is increasingly paying attention to technology-intensive business models and conducts<sup>1</sup>, which also brings the attention to the uses of IPRs in the realm of e-commerce and their potential to create undue monopolies in certain circumstances.

Many elements of e-commerce and the digital economy can have IP related issues. These elements are, among others:

- **Algorithms** - An algorithm is a set of instructions of a step by step process that is to be followed by a program to accomplish a specific task. It can be in the nature of an instruction of steps to be followed by a program (e.g. a search engine) in order to sort books by an author's name, find the cheapest hotel in a city, or for calculating complex equations, etc. Algorithms can be represented in text format, flow chart diagrams, etc. Just like the recipe of food products, algorithms can be treated by firms as trade secrets, protected under contractual non-disclosure obligations or under statutory trade secret laws. Written expressions of algorithms can be protected as copyright.

- **Source codes** - A source code is a collection of computer instructions written in human readable computer language. Source codes are translated into machine readable language for a computer to understand it and execute the instruction, known as object codes. Source codes and object codes can be protected as trade secrets. Source codes can be protected as copyright. The CPTPP contains a provision that prohibits governments of signatory countries from asking software companies for access to their source codes<sup>2</sup>. Similar provisions have been proposed in other agreements such as TiSA and RCEP.

- **Data and privacy protection, Ownership of data** - In the emerging information economy, personal data has become the fuel driving much of online commercial and social activity. As more and more economic and social activities move online, data protection and privacy become increasingly important. Data and privacy protection are also challenged by technological developments like cloud computing, the Internet of Things and Big Data analytics, particularly with regard to defining what is "personal data" and the management of cross-border data transfers. The sheer volume, velocity and variety of data that reside and travel across multiple channels / platforms within and between organizations are making firms deploy ever more advanced analytics and business intelligence solutions (including big data and social media) to

extract value from the sea of information. Given such powerful tools, and the vast amount of replicated information across various sources, it is relatively easy to get a picture of any individual's situation, strengths and limitations, in breach of his/her privacy rights. It is in this context that firms have to take IP rights into consideration when collecting, storing, processing or sharing that information. For example, if data that is collected is protected by copyright, use of data gathering and analyzing technologies may be challenged as copyright circumventing technology. In some countries, data may be protected as trade secrets, particularly if the data is aggregated.

• **Cross border flow of data/information, Data Localization regulations** - Currently, some countries like the US do not have any restriction on the transfer of personal data to foreign jurisdictions. However, most countries have some sort of restriction on cross-border flow of data with some exceptions. In some FTAs it has been proposed to introduce a restriction on the ability of governments to restrain the cross-border flow of data (Article 14.11 CPTPP, for example).

• **Big Data** - Apart from the issue of IP rights over data that is gathered and analyzed and the aggregated data that is produced through analytics, there may be IP issues related to technologies used for data gathering and analysis. For example, Google has obtained patents on a technology known as MapReduce which is described as a 'system and method for efficient large-scale data processing.' Patents on data gathering and analytical technologies can have significant implications for developing countries that might desire to enter the Big Data space, which is considered to be critical for competitive edge in the digital economy. Trade secret laws may also be critical in restricting the mobility of sparsely available data to rival firms.

• **Internet of Things, Artificial Intelligence, Machine Learning** - Patent protection of the infrastructure or technologies that drive the Internet of Things (IoT) is increasing, particularly in the US. Patent applications have been filed on neural networks that facilitate machine learning and deep learning (for example, Google has filed patents for a system for training neural networks). Patent activity of firms working on Artificial Intelligence (AI) and machine learning technologies have rapidly increased. Microsoft has filed over 200 AI-related patent applications since 2009, while Google comes in second with over 150. Patent applications are also being filed for the application of AI technologies in various fields ranging from healthcare, education, agriculture, etc. AI, IoT and Big Data are expected to further expand the boundaries of patentable subject matters (especially in the US, Japan, and EU). Eventually, in the future this may become a demand for extending similar protection in developing countries. Like in the case of pharmaceuticals, developing countries should adopt rigorous standards of patentability to prevent the grant of patents on trivial developments that may unduly restrain competition.

• **Copyright** - As mentioned above, a major IP issue related to e-commerce is the liability of intermediaries for copyright infringement facilitated through the availability of infringing content on the Internet. The intermediaries can include Internet service providers as well as platforms that provide access to a variety of content. There is variance in national approaches towards the liability of intermediaries. While in the US there is no policing obligation on intermediaries and a notice and takedown approach comprised of graduated response is followed, in the EU some proactive responsibilities may be expected on the part of Internet intermediaries under a duty of care to detect and prevent certain activities. Another critical issue of public interest, which has been proposed by Brazil in the WTO for further discussion, is how to ensure that exceptions and limitations to copyright in the digital environment are not thwarted through abuse or misuse of anti-circumvention measures and technological protection measures.

• **Technological protection mechanisms (TPMs)** - They are a relevant tool to enforce copyrights in the digital environment. However, TPMs - which have *sui generis* protection in certain jurisdictions - may impede access to lawful content already in the public domain altogether, as it can be a barrier to access through a technological measure.

• **Industrial Design on New Technological Designs** - Industrial design protection on graphical user interfaces (GUIs), typeface, and type font is increasing. Extension of such protection to GUI designs is being contemplated even without any requirement for fixation of the design in a specific product. In a dispute between Apple and Samsung concerning the breach of GUI design patents in the US, it has been held by the Supreme Court that the quantum of damage can be calculated on the basis of the total revenue from the sales of the product in which the infringing GUI design is used<sup>3</sup>. US, Japan have initiated discussions in WIPO<sup>4</sup> on design protection for new designs such as 3D holograms that can be used by smart devices to interact with their external environment.

## CONCLUSION

E-commerce is increasingly a focus of discussion in the WTO, having gained renewed attention in recent years. Intellectual property policy is a relevant component of e-commerce policies.

This linkage is usually not well understood. Countries should have a broader picture of the interaction between intellectual property and e-commerce, including on issues such as data localization requirements, data privacy regulations and IP protection (through patents, trade secrets, among others) for emerging technologies such as artificial intelligence.

At the WTO level, a plurilateral initiative on e-commerce has recently been launched, that will consider various proposals. Some of these submissions include proposals on IP issues. These tend to focus on protection and enforcement of trade secrets, copyrights and related

rights and trademarks, as well as extending protection to new areas such as algorithms and source codes. An important exception is a proposal to extend exceptions and limitations to promote access.

It is of utmost importance for developing countries to adopt e-commerce and IP policies that are mutually supportive and in line with their developmental goals and policy specificities. This requires setting an appropriate balance between access and protection of IPRs to take advantage of the opportunities and address the challenges of the e-commerce environment.

Therefore, there is a need for more study of the possible policy consequences of the proposals that are being advanced on e-commerce and IP, and what can countries do to foster e-commerce while securing a number of other interests, including technological advancement and other social values.

#### Endnotes:

<sup>1</sup> For instance, see the recent fine by the EU Commission on Google: [http://europa.eu/rapid/press-release\\_IP-19-1770\\_en.htm](http://europa.eu/rapid/press-release_IP-19-1770_en.htm)

<sup>2</sup> Article 14.17: Source Code. 1. No Party shall require the transfer of, or access to, source code of software owned by a person of another Party, as a condition for the import, distribution, sale or use of such software, or of products containing such software, in its territory.



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<sup>3</sup> Samsung Elecs. Co. v. Apple Inc. SUPREME COURT OF THE UNITED STATES. 137 S. Ct. 429 (2016)

<sup>4</sup> See latest discussions: [SCT/39/2](#), a document prepared by the Secretariat called "Summary of the main points emerging from the information session on graphical user interface (GUI), icon and typeface/type font designs" (April 2018), and [SCT/41/2 PROV.](#), a summary of a questionnaire on protection of GUIs among Member States of WIPO (April 2019).

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