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ORIGINAL ARTICLE

No More Strategical Neutrality on Technological Neutrality: Technological Neutrality as a Bridge Between the Analogue Trading Regime and Digital Trade

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Abstract

The World Trade Organization (WTO), a unique multilateral trading regime, has failed to establish its relevance to the digital nature of trade. This article revisits the 'principle of technological neutrality' to make the cross-border supply of services by electronic means subject to the current rules-based trading regime. I argue that the principle of technological neutrality could help resolve a number of thorny legal issues: confirming the applicability of the General Agreement on Trade in Services (GATS) rules to the delivery of services by electronic means; providing a guideline to determine the likeness of services in the era of digital trade; and backing up an evolutionary approach to interpreting the GATS schedules of commitments. However, the WTO adjudicatory bodies have been reluctant to rely on the principle of technological neutrality, which is referred to as strategic neutrality in this article. This article urges the WTO adjudicatory bodies to abandon their strategically neutral position on technological neutrality immediately. It also explores ways to incorporate the principle of technological neutrality into the world trading system at the bilateral, plurilateral, and multilateral levels.

Keywords: Technological neutrality; international trade law; digital trade; GATS; likeness

1. Introduction

The swift development of digital technologies poses a great challenge to the decades-old World Trade Organization (WTO). The legal framework of the WTO, particularly the General Agreement on Trade in Services (GATS), has no directly applicable disciplines for coping with digital trade, which in turn has greatly increased legal uncertainty. This is mainly due to the fact that the WTO/GATS regulatory framework was created when the Internet was in its infancy: very few people had the opportunity to utilize the Internet in the early 1990s, and even fewer trade negotiators would have expected digital technologies to completely transform the landscape of trade. Furthermore, subsequent multilateral trade negotiations failed to keep up with technological development. The WTO, a unique multilateral trading regime, has failed to establish its relevance to the digital nature of trade. Although there is an ongoing negotiation to form new rules on digital trade on a plurilateral basis, it is still a pipedream to have concrete rules in the foreseeable future given the vastly different interests of negotiating

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participants.[1] We are in urgent need to bring electronically delivered trade into a rules-based system.

Against this backdrop, this article revisits the 'principle of technological neutrality', which is a fundamental principle to make the cross-border supply of services by electronic means subject to the current rules-based trading regime. Trade law scholars, technology firms, and interest groups in the information and communication technology (ICT) sector generally acknowledge the principle of technological neutrality and insist that the WTO should incorporate this key principle in the digital era (Luff, 2004; Google, n.d.; Bieron and Ahmed, 2012; Drake, 2016; Burri, 2017; Cowhey and Aronson, 2017). The WTO World Trade Report meticulously describes the role of technological neutrality within the WTO framework:

> [T]he mechanism or method by which such services are provided should not have an impact on their treatment under WTO law. This provides meaningful predictability and stability. It means that, although the constantly changing digital environment means that services are continually constantly being provided in new and innovative ways, their provision continues to be governed by the framework of rules and commitments made by members upon their entry into the WTO.[2]

Although there is a growing trend of accepting the principle of technological neutrality among academic pundits and WTO members, the WTO adjudicating bodies still maintain a non-committal stance: they were requested several times to affirm the principle of technological neutrality but rulings were made without referring to the principle. We hereby appraise the WTO adjudicatory bodies as strategically neutral in technological neutrality and insist that they should shift their stance to a positive position immediately.

The principle of technological neutrality matters in three ways under international trade law: the applicability of the GATS framework to the delivery of services by electronic means; the determination of likeness between services provided by different transmission technologies in the context of non-discrimination; and the interpretation of specific commitments in GATS schedules. This article delves into these issues and explores ways to incorporate the principle into the global trading system.

2. Overview of Technological Neutrality in the World Trading Regime

2.1 Definition of Technological Neutrality

There is no consensual definition of technological neutrality. According to Pauletto, the notion of technological neutrality is understood as trade disciplines being equally applicable regardless of the means of transaction (Pauletto, 2008, 531). Chander argues that technological neutrality would require the online and offline versions of services to be tested under the same legal regime (Chander, 2013, 143). Concerning the issue of the classification of services, Zhang explains that the concept means 'the technology involved shall not affect the classification of services as long as the nature of services remains unchanged' (Zhang, 2015). Some WTO members present their opinions on the definition in a slightly different manner: the European Union (EU), for instance, focuses more on the economic dimension rather than on the legal one, upholding the notion of technological neutrality as 'the need for a similar treatment of economically comparable transaction independently from the technology used'.[3]

[1] A group of more than 75 WTO members have recently announced the Joint Statement on Electronic Commerce to commence negotiations on trade-related aspects of electronic commerce, which is known as the Joint Statement Initiative negotiations. See WTO, *Joint Statement on Electronic Commerce*, WTO Doc WT/L/1056 (25 January 2019).

[2] WTO (2018) *World Trade Report 2018 – The Future of World Trade: How Digital Technologies Are Transforming Global Commerce*. Geneva: WTO Publications, 170.

[3] WTO, *Work Programme on Electronic Commerce: Classification Issue – Submission from the European Communities*, WTO Doc WT/GC/W/497 (9 May 2003), para. 14.

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Taking into account all the opinions presented above, in this article we understand the principle of technological neutrality to mean simply that all laws and regulations should have the same application to trade in the same services regardless of the means of delivery (see, for a similar definition on the principle of technological neutrality, Hu, 2014; Streinz, 2019). In this sense, the principle of technological neutrality should be distinguished from network neutrality or flexibility in the choice of technology.[4]

2.2 Historical Development of Technological Neutrality

The idea of technological neutrality first appeared in the Chairman Note in 1996 during the WTO negotiations over basic telecommunications.[5] The Chairman Note aims to promote a better understanding of the meaning of commitments in the area of basic telecommunications. For that purpose, it states that any basic telecommunications service encompasses local, long-distance, and international services for public and non-public use; it may be provided on a facilities-basis or by resale; and it may be provided through any means of technology, including cable, wireless, and satellites.[6] The Chairman Note does not explicitly mention technological neutrality. It is clear however that, at least in the basic telecommunications service sector, the same GATS rules and commitments should apply regardless of the delivery method of basic telecommunications services on the condition that no other commitment is scheduled.

The term technological neutrality did not appear in official WTO documents until the United States (US) made its simultaneous submissions to the General Council (GC) and other WTO subsidiary bodies. In these submissions, the US insisted that market access and national treatment commitments should encompass the cross-border supply of services via electronic means in keeping with the principle of technological neutrality.[7] However, no further elaboration was provided, leaving the definition and scope uncertain. Moreover, it was solely an opinion of the US, falling short of representing the general view of WTO members on the issue.

In the meantime, discussions among delegations in Geneva on the issue have taken place several times under the Work Programme on Electronic Commerce (Work Programme). The Council for Trade in Services (CTS), in its Interim Report submitted to the GC, affirms that a common understanding of, if not a consensus on, technological neutrality seems to be developing among WTO members.[8] The Progress Report reiterates that the GATS is 'technologically neutral in the sense that it does not contain any provisions that distinguish between the different technological means through which a service may be supplied'.[9]

A general understanding is growing among WTO members that affirming the principle of technological neutrality is one of the top priorities to make the brick-and-mortar WTO/GATS framework matter in the digital era.[10] It is also true, however, that consensus has yet to be reached

[4]Network neutrality warrants that an Internet does not favor one application (e.g. video-on-demand) over others (e.g. email) (see Wu, 2003). Flexibility in the choice of technology ensures that private telecommunications service providers have the freedom to choose any technology as a means of providing telecommunications services. For an example on how trade agreements ensure flexibility in the choice of technology, see Article 13.23 paragraph 1 of the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP).

[5]WTO, *Note by the Chairman – Notes for Scheduling Basic Telecom Services Commitments*, WTO Doc S/GBT/W/2 (26 November 1996).

[6]Ibid. para. 1.

[7]WTO, *Work Programme on Electronic Commerce – Submission by the United States*, WTO Doc WT/GC/16, G/C/2, S/C/7, IP/C/16, WT/COMTD/17 (12 February 1999), 3.

[8]WTO, *Work Programme on Electronic Commerce – Interim Report to the General Council*, WTO Doc S/C/8 (31 March 1999), para. 4.

[9]WTO, *Work Programme on Electronic Commerce – Progress Report to the General Council*, WTO Doc S/L/74 (19 July 1999), para. 4.

[10]Ibid. para. 4; WTO, *Communication from the United States – Classification in the Telecommunications Sector under the WTO-GATS Framework*, WTO Doc TN/S/W/35, S/CSC/W/45 (22 February 2005), para. 14.

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and there is no provision dedicated to the principle of technological neutrality in any WTO agreement.

3. Technological Neutrality, Digital Trade, and the GATS

Although the WTO launched the Work Programme as early as 1998 to examine trade-related aspects of electronic commerce, the current world trading regime has failed to accommodate the digitalization of trade. Among several WTO agreements, the GATS may be the most relevant one to digital trade as it applies to any measures 'affecting trade in services'.[11] There is little doubt that certain types of services, such as media content, are easier than goods to provide digitally across borders. However, the legal text and schedules of specific commitments of the GATS may fall short of ensuring amicable solutions in accordance with case-specific elements in each dispute under the digital environment. The WTO adjudicatory bodies, eventually, would be required to set the definitive scope of the GATS and interpret the legal text and schedules of the GATS in a consistent manner. As a legal basis, we argue that the principle of technological neutrality is imperative to build a nexus between the analogue trading regime and digital trade reality. The principle of technological neutrality, in a practical way, could help resolve a number of thorny legal issues that the Work Programme failed to address.

3.1 Applicability of GATS Rules to Delivery of Services by Electronic Means

As Wunsch-Vincent and Hold put it, one of the most basic and fundamental legal issues concerning services trade today is whether GATS rules are applicable to the delivery of services by electronic means (Wunsch-Vincent and Hold, 2012, 182). We hereby assert that incorporating technological neutrality into the global trading system would help affirm that the cross-border electronic supply of services falls within the scope of the GATS once and for all. Without technological neutrality in place, a member might insist that it has no explicit obligation to abide by WTO/GATS rules because an 'electronically' delivered service is beyond the scope of the GATS.

3.1.1 Method of Delivery and the Scope of the GATS

When a WTO member's measure affects trade in services, that member is subject to GATS obligations.[12] However, legal uncertainty remains: it is questionable whether measures or policies affecting cross-border trade in certain services, where services are readily transformed into bits or bytes and transmitted through online networks, fall within the coverage of the GATS. Moreover, the methods of delivery will not be limited to the Internet: with technology advancing, delivery tools can go beyond the electronic way. Legal certainty would be undermined if the development of a different legal framework is required every time new and innovative delivery technologies emerge. The principle of technological neutrality would help ensure that delivery technologies do not decide whether economic transactions should be governed by the GATS, the GATT, or a sectoral agreement.

The WTO Secretariat, in its note, expresses its opinion that all services delivered electronically are covered by the GATS and adds that the legal regime applying to transactions throughout the WTO system should be determined by the 'nature' of the products being traded instead of the means of their delivery.[13] Despite the fact that technological neutrality is not explicitly mentioned, it is enough to infer the viewpoint of the Secretariat towards technological development in the WTO framework.

This idea has been shared among many WTO members. In the Interim Report, the CTS asserts that all services fall within the scope of the GATS, irrespective of the means by which

[11]Article I:1, GATS 1994, 1869 UNTS 183.

[12]Ibid.

[13]WTO, *Work Programme on Electronic Commerce – Note by the Secretariat*, WTO Doc S/C/W/68 (16 November 1998), para. 37.

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they are supplied, including digitally transmitted services.[14] As GATS rules are neutral to the means by which services are delivered, the scope of the GATS is broad enough to include electronically supplied services.[15] Some WTO members, however, convey that the issue of technological neutrality is complex and needs further examination.[16] A complete consensus has not been achieved in the WTO, thus falling short of calling it a universal principle of the WTO.

Trade law experts have also been interested in the scope of the GATS in the digital age. Mattoo and Schuknecht are the very first scholars to contend that electronically delivered services should be subject to GATS obligations. They point out the paramount importance of confirming the principle of technological neutrality by referring to it as the 'single most important step' to ensure that GATS rules apply to digital trade (Mattoo and Schuknecht, 2000, 15). Wunsch-Vincent and Pauletto also support the notion of technological neutrality in order for electronic commerce and/or digitally delivered services to be covered by GATS rules (Wunsch-Vincent, 2008, 501–502; Pauletto, 2008, 532).

All these arguments and opinions among WTO members and scholars support our assertion that the principle of technological neutrality renders services supplied by electronic means subject to the legal framework of the GATS. The principle, conclusively, would assure that the WTO/GATS system is neutral to any delivery technology.

WTO jurisprudence confirms that GATS rules apply to cross-border electronic delivery of services. Nonetheless, this comes with caveats from the perspective of the principle of technological neutrality.

3.1.2 WTO Jurisprudence

Among a limited number of GATS disputes, *US–Gambling*[17] and *China–Audiovisuals*[18] are worth reviewing for the issue of the applicability of GATS rules on digital trade. In their legal argument before the panel in *US–Gambling*, Antigua and Barbuda (Antigua) presented the findings of the Appellate Body in *Canada–Autos*[19] that a threshold question for the application of the GATS is whether the measure at issue is a measure affecting trade in services.[20] Antigua continued that since what constitutes measures affecting trade in services is very broadly construed in WTO law, and 'services' includes any service in any sector except those supplied in the exercise of governmental authority, the betting and gambling services supplied from Antigua through the Internet connection into the territory of the US fall within mode 1 or cross-border supply of services, as indicated in Article I:2(a) of the GATS.[21] The panel found and the Appellate Body confirmed that cross-border betting and gambling services delivered by the means of online networks are within the coverage of the GATS.[22]

The confirmation of the applicability of the GATS framework to services supplied by electronic means is often praised as the greatest achievement of *US–Gambling* (Wunsch-Vincent, 2006, 323). Much to our dismay, however, the findings of the Appellate Body did not touch

[14]WTO, *Work Programme on Electronic Commerce – Interim Report to the General Council*, WTO Doc S/C/8 (31 March 1999), para. 4.

[15]It is reiterated by the Progress Report. See WTO, *Work Programme on Electronic Commerce – Progress Report to the General Council*, WTO Doc S/L/74 (19 July 1999).

[16]Ibid. 3.

[17]Panel Report, *United States – Measures Affecting the Cross-Border Supply of Gambling and Betting Services (US–Gambling)*, WT/DS285/R (10 November 2004); Appellate Body Report, *US – Gambling*, WT/DS285/AB/R (20 April 2005).

[18]Panel Report, *China – Measures Affecting Trading Rights and Distribution Services for Certain Publications and Audiovisual Entertainment Products (China–Audiovisuals)*, WT/DS363/R (12 August 2009); Appellate Body Report, *China–Audiovisuals*, WT/DS363/AB/R (19 January 2010).

[19]Panel Report, *Canada – Certain Measures Affecting the Automotive Industry (Canada–Autos)*, WT/DS/139/R, WT/DS142/R (11 February 2000); Appellate Body Report, *Canada–Autos*, WT/DS139/AB/R, WT/DS142/AB/R (19 June 2000).

[20]Panel Report, *US–Gambling* (2004), para. 3.28.

[21]Ibid. paras. 3.28–3.29.

[22]Panel Report, *US–Gambling* (2004), para. 6.134; Appellate Body Report, *US–Gambling* (2005), para. 265.

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upon the legal status of the principle of technological neutrality under the WTO/GATS regulatory framework. It is still debatable whether GATS rules and disciplines apply to all services on a technologically neutral basis, since the panel and the Appellate Body in *US–Gambling* drew their conclusion without relying on the principle of technological neutrality.

Another noteworthy Internet-related WTO case is *China–Audiovisuals*. One of the most controversial legal issues in the case was the question of whether cultural or content products, which are relatively easy to digitalize and transmit via digital networks, are goods or services (Pauwelyn, 2010, 124). This also brought about the controversy over whether a specific measure is subject to GATT rules or GATS rules (ibid.).

The Appellate Body ruling on the definition of service in the *China–Audiovisuals* case was in line with that of *Canada–Periodicals*.[23] The Appellate Body in both cases based their decisions on the definition of service upon the tangibility of a product.[24] In other words, goods are tangible, being able to be physically touched, but services are 'products of economic activity that you can't drop on your foot' (Chander, 2013, 3). However, this legal criterion of tangibility that classifies a product as a good or a service, which subsequently decides whether the product is under the coverage of the GATT or GATS, is too simplistic and insufficient to reflect the economic reality. As Conconi and Pauwelyn put it, no economic rationale can account for 'why basic trade effects and welfare calculations should apply differently to, for example, tangible and intangible products or to distribution by mail or over the Internet' (Conconi and Pauwelyn, 2011, 102–103). Moreover, the panel and the Appellate Body in *China–Audiovisuals* did not take into account the principle of technological neutrality before they proceeded to examine whether Chinese measures violated their commitments under the GATS.

The conclusions of WTO adjudicatory bodies in neither *US–Gambling* nor *China–Audiovisuals* hinged on the principle of technological neutrality. The panel in *China–Audiovisuals* even seemed to intentionally avoid invoking the principle by exercising judicial economy.[25] Without clarification of the legal status of technological neutrality, the WTO adjudicatory bodies would have to face countless legal challenges as various new technologies are used to deliver services.

3.2 Determination of Likeness in the Era of Digital Trade

A question often emerges in the context of non-discrimination obligation in the digital age: is the electronic delivery of a service 'like' the traditional or on-site supply of the same service? (Diebold, 2010, 225). The question needs a thorough examination before it is answered.

3.2.1 The principle of Technological Neutrality in Determining Likeness in the Digital Era

It is argued that WTO jurisprudence on the interpretation of likeness in the GATT should be taken into account when a GATS dispute is brought up before the WTO Dispute Settlement Body (DSB) (Diebold, 2010, 101). Nevertheless, structural differences between the GATT and GATS as well as the peculiar nature of services trade make it hard to put GATT jurisprudence into the context of the GATS in a straightforward way. The determination of likeness is the most notable example: since services can be supplied via various methods as technology develops, it would be controversial whether the same service supplied online and in a traditional way is like a service in the non-discrimination context.

Diebold argues that consumers may perceive the differences in the methods of supply of a service; thus, the delivery method plays a critical role in a likeness analysis (Diebold, 2010, 252; see also Krajewski and Engelke, 2008, 401–409). His argument is in line with the US's assertion in

[23]Panel Report, *Canada–Certain Measures Concerning Periodicals* (*Canada–Periodicals*), WT/DS31/R and Corr. 1 (14 March 1997); Appellate Body Report, *Canada–Periodicals*, WT/DS31/AB/R (30 July 1997).

[24]Appellate Body Report, *China–Audiovisuals* (2010), para. 195; Appellate Body Report, *Canada–Periodicals* (1997), 17.

[25]Panel Report, *China–Audiovisuals* (2009), para. 7.1258.

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US–Gambling that a gambler who wants to enjoy the atmosphere in a brick-and-mortar casino site would hardly regard online gambling services replaceable to on-site gambling services and thus the demand substitutability is quite low.[26]

This line of logic, however, would impair the existing scheduled commitments since the framework of the GATS becomes vulnerable to new technology. If different delivery technologies were to make two like services, which share the same properties, nature, and functions, unlike, it would undermine WTO jurisprudence in which the determination of likeness relies on 'competitive relationship'.[27] For instance, it becomes increasingly probable that on-site medical services or medical doctors will go into fierce competition with foreign-origin telemedicine due to technological advances. Electronic variants of conventional medical services must not be used to circumvent the non-discrimination obligation.

If services that are of the same nature become unlike depending on the method of supply, it would also contradict the panel's finding that the 'nature' and 'characteristics' of the services at issue should be taken into account to determine likeness.[28] The panel did not precisely mention what nature and characteristics were referred to in its ruling, but the classification instruments of the GATS may provide a guideline: for instance, reference could be made to a criterion of the 'intrinsic nature of the products' in the Provisional Central Product Classification (CPC). Since the GATS applies not to the activity that produces service output but to measures affecting trade in service outputs, likeness should be determined by the intrinsic nature of service 'outputs', which relies on 'end-use' of the service rather than the method of delivery (Willemyns, 2019, 68).

Moreover, a variety of methods could be made available for the supply of services as technology advances. Then it would be difficult to predict whether a service supplied by technology A is like the service supplied by technology B, even though the only difference is the method of delivery. It would not only make the GATS framework unpredictable but also place a greater burden on the WTO adjudicating bodies, which determine likeness on a case-by-case basis.

Our premise that the determination of likeness in the GATS should build on the principle of technological neutrality is shared by a number of trade legal experts. Willemyns opines that different means of delivery do not incur an inherent unlikeness and only a competitive relationship matters when determining likeness (Willemyns, 2018, 6–7); Luff argues that technology used to transmit content does not affect the likeness of similar content (Luff, 2004, 1079); and Peng also asserts that the rules on likeness should depend on the nature of the service in a technologically neutral way (Peng, 2009, 680).

3.2.2 WTO Jurisprudence

The panel and the Appellate Body in *US–Gambling* were expected to give guidance on the interpretation of likeness in relation to technological neutrality. Nevertheless, the rulings fell short of high expectation.

The panel in *US–Gambling* confirmed the idea of technological neutrality, but to a very limited extent (Wunsch-Vincent, 2006, 346). Regarding the market access obligation, the panel found that once a commitment is undertaken within a mode of supply, unless specified otherwise, foreign service suppliers have a right to use various technological means of delivery by which a service may be provided across borders. At least, as far as market access obligation is concerned, for commitments undertaken within mode 1, cross-border supply should be applicable in a technologically neutral way.[29]

Wunsch-Vincent refers to the panel's interpretation of the notion of technological neutrality as 'intra-modal technological neutrality' (Wunsch-Vincent, 2006, 329). This intra-modal technological

[26]Panel Report, *US–Gambling* (2004), para. 3.167.

[27]Appellate Body Report, *European Communities – Measures Affecting Asbestos and Asbestos-Containing Products (EC–Asbestos)*, WT/DS135/AB/R (5 April 2001), para. 103.

[28]Panel Report, *European Communities – Regime for the Importation, Sale and Distribution of Bananas (EC–Bananas III)*, WT/DS27/R (25 September 1997), para. 7.322.

[29]Panel Report, *US–Gambling* (2004), para. 6.285.

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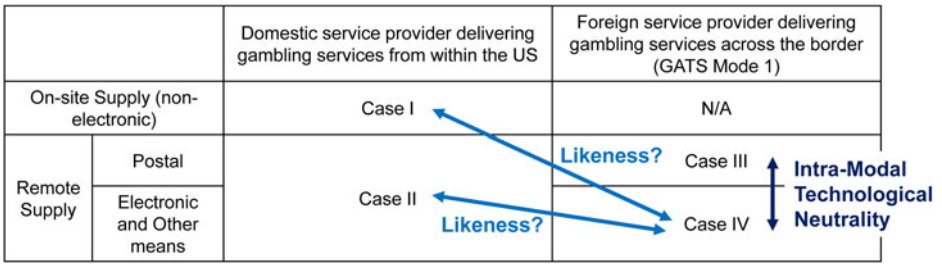

Figure 1. Technological Neutrality and Likeness in *US–Gambling*.
Source: Adapted from Wunsch-Vincent (2006, 331).

neutrality, which is much narrower than the general concept of likeness in its scope, is well illustrated in the Figure 1. Pursuant to the notion of intra-modal technological neutrality, gambling service suppliers using both postal and electronic means across borders should be subject to equivalent market access or national treatment obligation. This implies that the methods or technologies enabling mode 1 services supply should not affect whether the services in question are covered by GATS rules and commitments. The panel's finding was confirmed by the Appellate Body.[30]

The idea that technological neutrality should be welcoming, albeit in a narrow way, is taken into account in litigation. The fundamental issue of likeness in the digital era, however, is still left untouched. Concerning the issue of a violation of national treatment in the *US–Gambling* case, Antigua argued that the cross-border online gambling services provided by the Antiguan suppliers were like the on-site supply of gambling services provided by the US local suppliers. In response, the US countered that Antigua has failed to prove that remote gambling services and suppliers are like non-remote gambling services and suppliers.[31] This is demonstrated in Figure 1 as the relationship between Case IV and Case I. It is unclear whether likeness exists between foreign online services and their local counterparts, which are supplied in various remote ways, as in Case IV and Case II in Figure 1.

Despite the two parties' opposing arguments, the question of whether foreign-origin services transmitted by electronic means can be unlike domestic services supplied on-site or by non-electronic means has not been addressed by the panel. The panel and the Appellate Body have dealt with Antigua's claim solely based on GATS Article XVI, exercising judicial economy with respect to Antigua's GATS Article XVII claim.[32] Thus, one of the most important legal issues concerning digital trade – the relationship between likeness and the principle of technological neutrality – has to remain obscure until the next dispute arises. Despite a strong assertion that the electronic delivery of services does not make services unlike by definition (Wunsch-Vincent, 2006, 332), we have no choice but to endure legal uncertainty for the time being.

3.3 Evolutionary Interpretation of the GATS Schedules of Commitments

There are growing concerns over whether the decades-old GATS schedules of commitments are still relevant to the current digital nature of economies (Peng, 2012, 405–406). In particular, a critical question appears: how should the existing services schedules be interpreted in line with digital economic reality?

3.3.1 Evolutionary Interpretation and the Principle of Technological Neutrality

Changes, either expected or unexpected, are unavoidable between the date of the conclusion of a treaty and the date of its interpretation in actual litigation (Marceau, 2018, 791). Marceau

[30]Appellate Body, *US–Gambling* (2005), para. 239.
[31]Ibid. para. 6.423.
[32]Ibid. para. 6.426.

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succinctly categorizes these changes into four types, which can be scrutinized through the lens of Articles 31 and 32 of the Vienna Convention on Law of Treaties[33]: (a) linguistic changes for the ordinary or special meaning of terms, that is, when generic terms are used; (b) changes of ordinary meaning of the terms in their broad context; (c) physical or technical transformations; and (d) changes to other relevant and related treaties or aspects of international law (Marceau, 2018, 792).

Under the conventional doctrine of intertemporality in international law, the conclusion date of a treaty is chosen as the reference time for interpreting the treaty between the parties.[34] Thus, the provisions of a treaty should be interpreted in accordance with the meaning that they held at the time when the treaty was initially agreed upon. However, if strictly applied over the course of the treaty interpretation process, the doctrine of intertemporality would fail to take into account the substantial changes after the conclusion of the treaty (Marceau, 2018, 793). This caveat of the doctrine of intertemporality is particularly relevant to the GATS framework in the digital era. With digital technologies providing for a new way of services delivery and with new digital services coming into being, there is a growing concern over how to interpret the decades-old GATS services schedules in line with technological advancement. Such concern includes whether an economic activity enabled by digital technologies is covered by incumbent GATS commitments or whether existing market access and/or national treatment commitments may be extended to measures restricting digital trade.

To cope with these difficulties, the WTO adjudicating bodies have adopted an evolutionary or dynamic interpretative approach (Marceau, 2018, 792). The Appellate Body in *US–Shrimp*, for the first time, affirmed the necessity of evolutionary interpretation, stating: 'the generic term "natural resources" in Article XX(g) is not "static" in its content or reference but is rather "by definition, evolutionary"'.[35] This evolutionary approach of the WTO adjudicators is supported by the fact that the reference to intertemporality has disappeared from the draft text amid VCLT negotiations.[36] Panels and the Appellate Body have more leeway to read the WTO Agreements from a contemporary point of view.

Among Marceau's four types of changes, the third type of 'physical or technical transformation' is most pertinent to the principle of technological neutrality. Most of the time, technological progress is not envisaged at the time of treaty conclusion, making it hard to interpret the negotiators' true intention or the meaning of a provision based solely upon the legal text itself. Therefore, treaty interpreters need to rely upon a teleological interpretation for an evolutionary approach to be justified. In this sense, the principle of technological neutrality plays a critical role in retaining the object and purpose of the GATS and the effectiveness of individual services schedule.

Without the principle of technological neutrality, it would lead to an absurd conclusion that the scope and substance of commitments undertaken at the time of a member's accession to the WTO should be examined every time new technology develops. It would further undermine the flexibility of the GATS and weaken GATS negotiators' intentions to achieve the expansion of services trade under conditions of transparency and progressive liberalization.[37] Since the principle of technological neutrality rightly renders the object and purpose of the GATS insusceptible to technological development, it is necessary to its effectiveness to interpret services schedules in a more dynamic way (Marceau, 2018, 807). Such a proposition is also shared by WTO members:

[33]Vienna Convention on the Law of Treaties (VCLT) 1969, 1155 UNTS 331.

[34]The principle of intertemporality was articulated by Justice Huber. He stated in the *Island of Palmas* case that: 'a juridical fact must be appreciated in the light of the law contemporary with it, and not of the law in force at the time which a dispute in regard to it arises or falls to be settled.' *Island of Palmas*, *United States v Netherlands*, 4 April 1928, Permanent Court of Arbitration.

[35]Appellate Body Report, *United States – Import Prohibition of Certain Shrimp and Shrimp Products (US–Shrimp)*, WT/DS58/AB/R (6 November 1998), para. 130.

[36]See, for the negotiating history of the VCLT, Van Damme (2009); see also Marceau (2018).

[37]Preamble of the GATS.

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the US, for instance, has called upon other members for the recognition of old classifications and for commitments to be applied to new technologies.[38] Trade law experts also push the adjudicatory bodies hard to formally accept the notion of technological neutrality with respect to the interpretation of GATS schedules and commitments (Peng, 2012; Tuthill, 2016; Conconi and Pauwelyn, 2011; Marceau, 2018).[39]

It is expected that the principle of technological neutrality would help maintain the stability and predictability of the GATS regulatory framework. It would provide theoretical grounds for the evolutionary interpretation approach in the digital era. Nevertheless, WTO jurisprudence on this issue is far from clear.

3.3.2 WTO Jurisprudence

To the best of our knowledge, *China–Audiovisuals* is a unique case dealing with the interpretation of the services schedule of specific commitments with regard to digital trade.

China–Audiovisuals was about whether a music distribution service over digital networks was covered by GATS rules and whether it was subject to China's specific market access and national treatment commitments. The complainant in the dispute, the US, had recourse to the principle of technological neutrality to contend that any practical differences that may exist between the supply of sound recordings in the physical and non-physical forms are simply differences with respect to the 'means of delivery'.[40] According to the US, the principle of technological neutrality does not allow these differences to affect the interpretation of the scope of a GATS commitment.[41] China, on the other hand, rebutted the complainant's assertion that the principle of technological neutrality was formally accepted by WTO members. It also denied the argument of the US that the principle makes irrelevant the differences between the supply of sound recordings in a physical as compared to a non-physical form.[42]

The role of technological neutrality in clarifying the scope of China's services commitments and its status in the world trading system was explicitly raised in *China–Audiovisuals*. The panel, however, concluded that there was no need to invoke the principle of technological neutrality to address the issue at hand. It eventually exercised judicial economy to take a strategically neutral stance on the principle of technological neutrality.[43] When the Appellate Body was requested to determine whether the scope of commitments in sound recording distribution services may be extended to the electronic distribution, it took an evolutionary approach, consistent with the rulings in *US–Shrimp* without referring to the principle of technological neutrality.[44]

The WTO adjudicatory bodies may have deemed the evolutionary approach enough to address emerging legal issues in the digital trade context. However, Delimatsis rightfully laments that it is puzzling why the panel and Appellate Body in *China–Audiovisuals* did not refer to the principle of technological neutrality, even when the issue was unequivocally challenged by the two parties (Delimatsis, 2011, 281). We are of the view that the WTO adjudicatory bodies have been hesitant to adopt the idea of technological neutrality in interpreting GATS commitments intentionally and have taken the stance of 'strategic neutrality' on technological neutrality. The Appellate Body should be credited for taking an evolutionary approach towards the interpretation of

[38]WTO, *Joint Statement on Electronic Commerce Initiative – Communication from the United States*, WTO Doc JOB/GC/178 (12 April 2018), para. 6.1.

[39]On the other hand, there is another view that it is not sufficient to adopt the principle of technological neutrality in interpreting the GATS schedules because existing commitments are out of date and many subsectors are not included. See, among others, Mitchell and Mishra (2018).

[40]Panel Report, *China–Audiovisuals* (2009), para. 7.1248.

[41]Ibid. para. 7.1248.

[42]Ibid. para. 7.1249.

[43]Ibid. para. 7.1258.

[44]The Appellate Body stated: 'More generally, we consider that the terms in China's GATS Schedule ('sound recording' and 'distribution') are sufficiently generic that what they apply to may change over time.' Appellate Body Report, *China–Audiovisuals* (2010), para. 396.

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GATS commitments, rightly inferring negotiators' intention from the use of generic terms. It is disappointing, however, that the WTO adjudicators have refused to accept the principle of technological neutrality, which is essential in warranting an evolutionary interpretation amid the rapidly changing technological environment.[45]

3.4 Why Would the WTO Adjudicators Maintain Strategic Neutrality on Technological Neutrality?

Several reasons may explain why the WTO adjudicators are reluctant to adopt the principle of technological neutrality. To begin with, there is no textual basis on technological neutrality in the WTO legal text. The Chairman Note on basic telecommunications services deals with technological neutrality only in an implicit fashion.[46] It is also limited to the basic telecommunications commitments and may not be applicable to other service sectors (Hu, 2014, 82). Given no textual basis in WTO agreements, it must be burdensome for panels and the Appellate Body, which generally give priority to semantic analysis (Marceau, 2018, 805), to have recourse to technological neutrality as a general principle.

Second, no consensus has been formulated so far among WTO members on whether technological neutrality is a ubiquitous principle in the WTO/GATS legal framework. Some members have requested more discussions and examination of the issue in the course of the Work Programme.[47] It might not be easy for the WTO adjudicatory bodies to declare technological neutrality as a universal WTO principle before a general consensus is reached.

Last but not least, the panel and the Appellate Body in *China–Audiovisuals* avoided examining the case through the lens of technological neutrality. It was not only because the GATS mode 3 commercial presence was at the center of the dispute but also because the main product at issue was sensitive cultural goods and culture-related services (Weber, 2010, 16). The Appellate Body thus focused more on the questions of whether the content was goods or services and whether the respondent's measures were justified by public moral defense in accordance with Article XIV of the GATS.

4. A Way Forward to Embrace the Principle of Technological Neutrality in the World Trading System

Provided that the WTO adjudicatory bodies have been hesitant to adopt the principle of technological neutrality, alternatives should be sought to incorporate the principle into the world trading system.

4.1 At the Bilateral or Regional Level

As an interim way of incorporating the principle of technological neutrality into the world trading governance, bilateral or regional trade agreements (RTA) can be utilized. This idea is gaining momentum among several countries. A number of recently concluded RTAs include provisions recognizing the principle of technological neutrality in a direct or indirect manner.

It has been found that several RTAs explicitly recognize the principle of technological neutrality.[48] Other RTAs incorporate specific provisions on the principle of technological neutrality. The specific provisions include: the adoption of measures based on the technological neutrality

[45]Peng argues that the principle of technological neutrality may serve as the rationale for the notion of 'generic term' used in *China–Audiovisuals* (Peng, 2012, 427).

[46]WTO, *Note by the Chairman – Notes for Scheduling Basic Telecom Services Commitments*, WTO Doc S/GBT/W/2 (26 November 1996), para. 1.

[47]WTO, *Work Programme on Electronic Commerce – Interim Report to the General Council*, WTO Doc S/C/8 (31 March 1999), para. 3; WTO, *Work Programme on Electronic Commerce – Progress Report to the General Council*, WTO Doc S/L/74 (19 July 1999), para. 4.

[48]See among others Article 71.2 of Japan–Switzerland Economic Partnership Agreement (EPA); Article 9.1.3 of Japan–Mongolia EPA; Article 13.1.3 of Australia–Japan EPA; Article 8.70.3 of EU–Japan EPA.

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principle; the prevention of measures denying legal effect solely based on an electronic form and measures discriminating among different forms of technology; and non-discrimination on services transmitted electronically against by other means.[49]

There are other provisions that address the idea of technological neutrality in an indirect way.[50] To illustrate, some RTAs encourage the parties not to impose more restrictive measures on international transactions via electronic means than via traditional means. Other RTAs stipulate that the parties shall grant e-commerce consumer protection, which is equivalent to the protection granted for consumers of other forms of transaction methods. Also found are provisions requiring the parties to provide the legal validity of signatures in an electronic form.

Japan is one of the most active players to incorporate the principle of technological neutrality into its RTAs. For instance, Article 71.2 in the Electronic Commerce Chapter of the EPA between Japan and Switzerland explicitly refers to technological neutrality. Pursuant to the principle, 'any provisions related to trade in services do not distinguish between the different technological means through which a service may be supplied'.[51] It goes further to prohibit the parties from 'discriminat[ing] the supply of services transmitted electronically against the supply of like services by other means'.[52] The Japan–Switzerland EPA is ingenious in shedding light on the definition, scope, and function of the principle of technological neutrality, while other RTAs only recognize the principle without any further elaboration.

With multilateral negotiations stalemated for decades, RTAs can serve as an efficient and swift rule-making tool, if not a perfect one, to reduce the legal uncertainty brought about by digital trade. Moreover, specific provisions addressing the principle of technological neutrality in RTAs would guarantee the applicability of principal disciplines such as a non-discriminatory obligation to services supplied by electronic means at least between the parties to the agreement. In this light, the technological neutrality provision in Japan–Switzerland EPA, which sets forth the definition and function of the principle, would be a good model for other RTAs to refer to.

4.2 At the Plurilateral Level

The successful conclusion of the Fourth Protocol to the GATS,[53] the Information Technology Agreement (ITA) and the expansion of ITA have shifted the attention of trade negotiators from a multilateral negotiation venue to a plurilateral one. Plurilateral negotiations have certain benefits: negotiations take place among like-minded countries with similar trade interests, which makes it easy for them to reach an agreement; and more participants are involved than in bilateral or regional trade negotiations, thus enabling negotiation results to be readily multilateralized.

Many digital trade rules on which WTO members have failed to reach a consensus so far may be discussed at the plurilateral negotiations. Among others, the principle of technological neutrality is arguably the most urgent and practical issue that needs to be discussed at the plurilateral venue. Should the definition, scope, and function of the principle be inscribed in a plurilateral agreement on digital trade, it would help reduce legal uncertainty stemming from the gap between the digital economy and the analogue WTO/GATS legal framework. Unless the WTO adjudicatory bodies discard their strategically neutral stance on technological neutrality, a plurilateral agreement can be a plausible option to incorporate the principle of technological neutrality into the world trading regime.

[49]For more on technological neutrality-related provisions incorporated in RTAs, see Monteiro, J. and R. Teh (2017) 'Provisions on Electronic Commerce in Regional Trade Agreement', WTO Staff Working Paper ERSD-2017-11, WTO, 40–42.

[50]Ibid. 42.

[51]Article 71.2 of Japan–Switzerland EPA. In addition, Article 9.1.3 of Japan–Mongolia EPA sets out: 'The Parties recognize the principle of technological neutrality in electronic commerce.' Article 1.3 in Chapter VI of EU–Japan EPA stipulates: 'The Parties recognize the importance of the principle of technological neutrality in electronic commerce.'

[52]Article 74 of Japan–Switzerland EPA.

[53]It is also known as the 'Annex on Negotiations on Basic Telecommunications'.

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One specific way to accommodate the principle of technological neutrality at the plurilateral level is to encourage WTO members to schedule the principle as an additional commitment pursuant to Article XVIII of the GATS. This attempt to have additional commitments in a specific sector on a plurilateral basis is not unprecedented: it has been used for the adoption of definitions and regulations proposed in the Reference Paper on Basic Telecommunications Service during the negotiation on basic telecommunications in the late 1990s. WTO members have reached an agreement to schedule the regulatory principles in the Reference Paper as additional commitments pursuant to GATS Article XVIII due to the concern that the principles in the Reference Paper were too sector-specific to be inscribed in a framework agreement such as the GATS (Gao, 2008, 271). As a group of WTO members have negotiated and concluded the Reference Paper on a plurilateral basis, it would be relatively easy for like-minded members to list the principle of technological neutrality as an additional commitment to their schedule.

At the moment, more than 75 WTO members, including the US, the EU, and China, are participating in ongoing WTO plurilateral e-commerce negotiations under the Joint Statement Initiative launched in 2019.[54] This plurilateral venue would be a good place to negotiate a commitment to the principle of technological neutrality.

4.3 At the Multilateral Level

An alternative way can also be sought at the multilateral level. WTO members, for instance, may agree to have a new 'Annex on Electronic Commerce' to the GATS in order to constitute new rules and disciplines governing digital trade. The principle of technological neutrality can be inscribed in this Annex with a dedicated provision. In this regard, reference can be made to the equivalent provision in the Japan–Switzerland EPA.[55] WTO members also may agree to revise their GATS schedule to include the principle of technological neutrality in a cover note, headnote, or footnote.

Seeking a multilateral solution on controversial regulatory issues is by no means an easy option. Once an arrangement is concluded on a multilateral basis, however, it has a legally binding effects on all members and could serve as a legal reference for WTO adjudicators to take into account in litigation.

5. Conclusion

It is too early to confirm that the idea of technological neutrality is accepted as a general principle within the WTO/GATS legal framework. However, it should also be noted that a common understanding is emerging among academic scholars and WTO members with respect to the role of technological neutrality as a bridge between the analogue world trading regime and the digital nature of trade. Given that new and innovative technologies will be increasingly employed to deliver more services, integrating the principle of technological neutrality into the WTO framework is of great importance. As the WTO adjudicatory bodies take a strategically neutral stance on the issue, it is still questionable whether GATS rules and disciplines can be comprehensively applied to digital trade and how existing GATS schedules and commitments are interpreted in line with digital economic reality.

Cross-border trade in new digital services and services provided over Internet networks should be subject to the legal framework of the WTO/GATS for legal predictability and stability (WTO, 2018, 170). We strongly believe that the principle of technological neutrality brings legal certainty to the existing global trading system when dealing with the digital aspects of trade. There should be no more leeway for the WTO adjudicatory bodies and WTO members to adhere to strategical neutrality on the principle of technological neutrality.

[54]WTO, *Joint Statement on Electronic Commerce*, WTO Doc WT/L/1056 (25 January 2019).
[55]See Article 71.2 of the Japan–Switzerland EPA.

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The notion of technological neutrality may help countries administer domestic measures or policies in a transparent and GATS-consistent manner. Moreover, it would serve as clear guidance for the WTO adjudicating bodies to interpret the GATS in a more digital trade-friendly way.

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