TOWARDS AI-DRIVEN TRADE REGULATION: REGULATORY CHALLENGES AND GLOBAL COMMERCE WITHIN WTO FRAMEWORK

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ABSTRACT

This paper examines the regulatory challenges and opportunities of artificial intelligence (hereinafter "AI") in the context of the World Trade Organization (hereinafter "WTO") framework. AI is a disruptive technology that has profound implications for international trade and global governance. However, the current WTO rules and agreements, such as the General Agreement on Tariffs and Trade, the General Agreement on Trade in Services, and the Agreement on Technical Barriers to Trade (TBT), are not well-equipped to deal with the complex and dynamic nature of AI and its applications. The paper argues that AI poses a serious challenge to the traditional dichotomy of goods and services, which is the basis of the WTO classification and regulation of trade. The paper also explores the potential of AI to enhance trade cooperation and innovation, especially in the areas of digital economy, e-commerce, and technical standards. The paper analyzes the existing and proposed agreements that aim to address the trade-related aspects of AI, such as the Digital Economy Partnership Agreement (DEPA), the Joint Statement on E-Commerce, and the Trade and Technology Council (TTC). The paper evaluates the strengths and weaknesses of these agreements and proposes some recommendations for developing a more comprehensive and harmonized approach to AI

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regulation under the WTO framework. The paper concludes that AI is a game-changer for international trade and requires a flexible and adaptable regulatory framework that balances the interests and values of different stakeholders.

KEYWORDS: *artificial intelligence, Digital Economy Partnership Agreement, WTO, Singapore-Australia Digital Economy Agreement, Agreement on Technical Barriers to Trade*

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I. INTRODUCTION

Artificial Intelligence (hereinafter "AI"), lauded by the World Trade Organization (hereinafter "WTO") as a forthcoming disruptive technological force that can catalyze transformative changes in the economic and societal realms, exhibits an intricate interconnection with the domain of international trade.[1][2] This nexus manifests in the dual facets of AI's influence on international trade dynamics.[3] AI has a dual impact on international trade dynamics: on the one hand, it enables the widespread deployment of AI technologies in global value chains, enhancing productivity, efficiency, and innovation;[4] on the other hand, it poses significant regulatory challenges and opportunities for the WTO framework, which governs the trade of goods, services, and data. Moreover, the ramifications of AI are reverberating

[1] In addition to Artificial Intelligence [hereinafter AI], disruptive technologies include blockchain, the Internet of Things, virtual reality, drones, 3D printing, and other cutting-edge technologies. *See WCO/WTO Study Report on Disruptive Technologies*, WORLD CUSTOMS ORG. & WORLD TRADE ORG. [hereinafter WTO] (2022), https://www.wto.org/english/res_e/booksp_e/wco-wto_e.pdf.

[2] *Artificial Intelligence*, INT'L TRADE ADMIN., https://www.trade.gov/artificial-intelligence (last visited June 30, 2024).

[3] *See generally* Janos Ferencz et al., *Artificial Intelligence and International Trade: Some Preliminary Implications*, ORG. FOR ECON. COOP. & DEV. [hereinafter OECD] (2022), https://www.oecd-ilibrary.org/docserver/13212d3e-en.pdf?expires=1707113436&id=id&accname=guest&checksum=0F9A5EC2B3A79C3489F0AC23FFA56544.

[4] Joshua P. Meltzer, *The Impact of Artificial Intelligence on International Trade*, BROOKINGS (Dec. 13, 2018), https://www.brookings.edu/articles/the-impact-of-artificial-intelligence-on-international-trade/.

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within the landscape of Regional Trade Agreements, which have started to incorporate provisions with direct pertinence to AI, such as binding commitments on the unimpeded flow of data, safeguards for privacy, proscriptions against localized storage requirements, and stipulations on source code governance and cybersecurity.[56] Furthermore, the landscape is enriched by novel accords tailored for the digital economy, typified by instruments like the Digital Economy Partnership Agreement (hereinafter "DEPA") and the Singapore-Australia Digital Economy Agreement (hereinafter "SADEA"). These agreements notably enshrine provisions touching upon diverse dimensions of the digital realm, including the fluidity of data transfers, safeguarding privacy imperatives, proscription of localized data storage mandates, and governance of source code and cybersecurity protocols.

The main research question of this paper is: how can the WTO framework effectively regulate and cooperate on AI and its trade-related aspects? The study examines the legal rules and agreements that apply to AI and its trade-related aspects, such as the General Agreement on Tariffs and Trade (hereinafter "GATT"), the General Agreement on Trade in Services (hereinafter "GATS"), the Agreement on Technical Barriers to Trade (hereinafter "TBT"), the DEPA, the Joint Statement on E-Commerce, and the Trade and Technology Council (hereinafter "TTC"). Moreover, the study evaluates the strengths and weaknesses of these rules and agreements, and propose some recommendations for developing a more comprehensive and harmonized approach to AI regulation under the WTO framework.

II. RELATIONSHIP BETWEEN AI AND INTERNATIONAL TRADE FOCUSING ON THE WTO FRAMEWORK

The confluence of AI's burgeoning presence within international trade and its embodiment within the contours of contemporary trade agreements underscores the intricate and evolving interplay between technological

[5] *See generally* Lyria Bennett Moses, *Adapting the Law to Technological Change: A Comparison of Common Law and Legislation*, 26(2) UNSW L.J. 394 (2003).

[6] AI's relevance to these provisions lies in three key aspects. Firstly, AI systems aimed at tackling various issues and serving diverse populations rely on global data access. For instance, AI development in fields like healthcare benefits from access to international health data to enhance system accuracy and relevance. Secondly, concerns over domestic privacy standards and security are leading governments to limit personal data transfer across borders. Lastly, the demand for access to source code as a prerequisite for investment or market entry poses a challenge to AI development. Regional trade agreements, such as the Comprehensive and Progressive Trans-Pacific Partnership Agreement and the United States-Mexico-Canada Agreement, encompass provisions that address these issues. They promote the free flow of data across borders, forbid requirements for locating computing facilities in specific locations, safeguard product source code from compulsory disclosure to national authorities, and encourage the use of innovative encryption solutions to boost privacy and security.

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advancement and trade regulatory frameworks. The new digital economy agreements all contain AI-related provisions. The connection between AI and commerce is undeniably strong. AI has the potential to enhance productivity, streamline supply chain management, lower trade expenses, and simplify trade processes. Likewise, trade and trade policies are instrumental in disseminating AI systems and serve as vital avenues for obtaining goods, services, individuals, and data.[7]

The large-scale emergence of AI has brought about at least two new issues in international law: "International Law in AI" and "AI in International Law." The former focuses on how AI affects the functioning of international law, while the latter concerns how international law is utilized to govern AI.[8] Research on the intersection of AI and international law can be broadly categorized into three distinct areas. The first category explores the overall impact of AI on international law, examining the challenges, opportunities, and responses from a broader perspective.[9] The second category delves into the specific effects of AI within certain areas of international law, including international human rights law,[10] international humanitarian law,[11] international law of the sea,[12] and international economic law.[13] Lastly, the third category examines the regulation of AI concerning a country's wider economic and foreign policy.[14]

Through the preliminary sorting of the above research results, the interaction between AI and international law has been studied from various angles. Still, scholars need to carry out special sorting and in-depth research on the regulation of AI from the perspective of international trade law. Although some scholars have made a preliminary response to the impact of

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[7] *See generally* Ferencz et al., *supra* note 3.

[8] *See generally* Wei Shen（沈伟） & Erya Zhao（赵尔雅）, *Shuzi Jingji BeiJing xia de Rengong Zhineng Guoji Fa Guizhi*（数字经济背景下的人工智能国际法规制）[*International Law Regulation of Artificial Intelligence Under the Background of Digital Economy*], 24(5) SHANGHAI CAIJING DAXUE XUEBAO（上海财经大学学报）[J. SHANGHAI U. FIN. & ECON.] 123 (2022).

[9] *See generally* Corinne Cath, *Governing Artificial Intelligence: Ethical, Legal and Technical Opportunities and Challenges*, 376(2133) PHIL. TRANSACTIONS ROYAL SOC'Y A 1 (2018).

[10] Lottie Lane, *Clarifying Human Rights Standards Through Artificial Intelligence Initiatives*, 71(4) INT'L & COMPAR. L.Q. 915, 915-44 (2022).

[11] Kjølv Egeland, *Lethal Autonomous Weapon Systems under International Humanitarian Law*, 85(2) NORDIC J. INT'L L. 89, 89-118 (2016); *see also* Fatima Roumate, *Artificial Intelligence, Ethics, and International Human Rights Law*, 29 INT'L REV. INFO. ETHICS 1, 1 (2020).

[12] Matthijs M. Maas, *International Law Does Not Compute: Artificial Intelligence and the Development, Displacement or Destruction of the Global Legal Order*, 20(1) MELBOURNE J. INT'L L. 29, 29-57 (2019).

[13] Anupam Chander & Noelle Wurst, *Applying International Economic Law to Artificial Intelligence*, 24(4) J. INT'L. ECON. L. 804, 804-09 (2021).

[14] *See generally* Emmie Hine & Luciano Floridi, *Artificial Intelligence with American Values and Chinese Characteristics: A Comparative Analysis of American and Chinese Governmental AI Policies*, 39 AI & SOC'Y 257 (2022).

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AI on international trade law[15] but have yet to involve the domestic and international level to create a means of detailed discussion, this paper fills this gap to a certain extent.

AI comprises three primary subfields: Narrow, General, and Super-intelligent AI.[16] As per the ambit of international trade law examined in this paper, it is pertinent to note that the term "artificial intelligence" is specifically denoted to the domain of Narrow AI (hereinafter "Narrow AI"). The applicability of WTO provisions to AI has raised doubts from a textual perspective within the WTO framework. Whether AI is explicitly referenced in the WTO agreements or in the commitments of its members—which are fundamental components of the treaty—is a topic of ongoing debate in academic circles. As AI is not explicitly referenced in these commitments, there is debate over whether the WTO should be construed to encompass this emerging Technology.[17] However, this question is ultimately unfounded. The cross-border movement of AI algorithms involves several main patterns: (1) Transferring data or datasets across borders into AI machine learning systems. (2) The cross-border transfer of AI machine learning algorithms to the location of the data. (3) The cross-border application of predictions made by AI machine learning systems elsewhere. Consequently, these algorithmic systems establish additional cross-border interdependencies, potentially impacting end-users rights and societal values across boundaries. Both cross-border movement patterns 1 and 2 of AI algorithms fundamentally involve data movement. A substantial body of research already focuses on cross-border data flow from various perspectives.[18] Given this context, this paper centers on pattern 3, which concerns the cross-border application of predictions generated by AI machine learning systems. This pattern falls under the services category in scenarios involving no physical transfer. It is closely related to GATS under WTO. The general obligations and commitments of the GATS are based on the general principles of non-discrimination, market access, and transparency. The extent of discretion granted to WTO members depends on their specific commitments

[15] Shin-yi Peng et al., *Artificial Intelligence and International Economic Law: A Research and Policy Agenda*, *in* ARTIFICIAL INTELLIGENCE AND INTERNATIONAL ECONOMIC LAW: DISRUPTION, REGULATION, AND RECONFIGURATION 1, 10-22 (Shin-yi Peng et al. eds., 2021).

[16] Juned Ghanchi, *What Is Artificial Superintelligence? How Is It Different from Artificial General Intelligence?*, IT CHRONICLES (Oct. 9, 2020), https://itchronicles.com/artificial-intelligence/what-is-artificial-superintelligence-how-is-it-different-from-artificial-general-intelligence/.

[17] Anupam Chander, *Artificial Intelligence and Trade*, *in* BIG DATA AND GLOBAL TRADE LAW 115, 116-17 (Mira Burri ed., 2021).

[18] Susan Ariel Aaronson, *Data Is Different, and That's Why the World Needs a New Approach to Governing Cross-Border Data Flows*, 21(5) DIGITAL POL'Y, REGUL. & GOVERNANCE 441, 441 (2019); *see generally* Douglas W. Arner et al., *Financial Data Governance*, 74(2) HASTINGS L.J. 235 (2022).

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concerning market access and national treatment.[19] This discretion is determined by their pledges in these areas. GATS applies to all service sectors except for government services and covers all measures affecting trade in services, from production to final delivery.[20]

The specific commitments of WTO members are included in the GATS schedule on an industry basis.[21] However, when most WTO members made GATS commitments, AI technology did not exist. The WTO panel ruled that GATS covers digital services in cross-border trade of US gambling.[22] The WTO appellate body stated in the China case that GATS commitments are a lasting multilateral agreement. This applies to all members, including those who joined after 1995.[23] The cases of Chinese publications, audiovisual products, and the United States gambling case indicate that GATS should be regarded as a continuously evolving "living agreement." The scope and meaning of commitments made by WTO members, particularly regarding new forms of service provision and digital services within the scope of existing commitments, should evolve to adapt to the development of new technologies.[24] The sustainable development of GATS and its coverage of services provided electronically demonstrate the applicability of GATS to services powered by AI, and the commitments of WTO members under GATS are relevant. The mentioned cross-border flow mode of AI algorithms, specifically the cross-border application of predictive results from AI machine learning systems, tends to align with the cross-border delivery and overseas consumption under the GATS mode. The applicability of WTO provisions to AI is relevant to a WTO member's specific commitments in its schedule. In contrast, AI poses significant challenges to

[19] General Agreement on Trade in Services art. 18, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1B, 1869 U.N.T.S. 183, 33 I.L.M. 1167 [hereinafter GATS]. (Members may negotiate commitments on measures affecting trade in services that are not required to be included in the schedule of concessions under Articles 16 or 17, including measures relating to qualifications, standards or licensing matters. Such commitments shall be included in a Member's schedule of concessions.)

[20] GATS art. 28. (For the purposes of this Agreement, (a) "measure" means any measure of a Member, whether in the form of a law, regulation, rule, procedure, decision, administrative act or any other form; (b) "supply of services" includes the production, distribution, marketing, sale and delivery of services.)

[21] *Guide to Reading the GATS Schedules of Specific Commitments and the List of Article II (MFN) Exemptions*, WTO, https://www.wto.org/english/tratop_e/serv_e/guide1_e.htm (last visited June 30, 2024).

[22] Panel Report, *United States — Measures Affecting the Cross-Border Supply of Gambling and Betting Services*, ¶ VII.998, WTO Doc. WT/DS285/R (adopted Apr. 20, 2005) [hereinafter *US — Gambling* Panel Report].

[23] Appellate Body Report, *China — Measures Affecting Trading Rights and Distribution Services for Certain Publications and Audiovisual Entertainment Products*, ¶ 396, WTO Doc. WT/DS363/AB/R (adopted Jan. 19, 2020) [hereinafter *China — Publications and Audiovisual Products* Appellate Body Report].

[24] *See generally* Yik-Chan Chin & Jing-Wu Zhao, *Governing Cross-Border Data Flows: International Trade Agreements and Their Limits*, 11(4) Laws 63 (2022).

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the WTO regarding the dichotomy between goods and services and exceptions based on public morals.

III. CHALLENGES AND OPPORTUNITIES IN REGULATING AI WITHIN THE WTO FRAMEWORK

AI poses significant regulatory challenges and opportunities for the WTO framework, which governs the trade of goods, services, and data. On the one hand, AI can enhance productivity, efficiency, and innovation in global value chains, and create new opportunities for trade cooperation and development, especially in the areas of digital economy, e-commerce, and technical standards. On the other hand, AI can complicate the WTO's classification of trade into goods and services, which affects the applicability of different legal rules and agreements, such as the GATT, the GATS, the TBT, the DEPA, the Joint Statement on E-Commerce, and the TTC.

A. Exacerbation of the WTO's Dichotomy of "Goods vs. Services"

The WTO classifies trade using the traditional categorization of goods and services. GATT governs goods trade. At the same time, the GATS regulates services trade in four modes: cross-border delivery, consumption abroad, commercial presence, and movement of natural persons. This distinction is crucial, as it empowers members with greater control over the liberalization of services through the intricate system of positive and negative lists within the GATS framework.[25] Before choosing the applicable law, experts from the WTO Dispute Settlement Body and Appellate Body must classify the disputed trade issue, determining whether it falls under GATT or GATS jurisdiction. The advancements in AI further complicate the challenges in classifying such issues within the WTO.[26]

For instance, an autonomous vehicle is a commodity, yet it can also be considered a service because its autonomous system provides navigation for the vehicle.[27] The United Nations' "Central Product Classification 2.1" defines products as forming bundled combinations of goods and services in this scenario. When the standard is applicable, such products should be classified based on their primary component (added value).[28] According to

[25] Shin-yi Peng, *A New Trade Regime for the Servitization of Manufacturing: Rethinking the Goods-Services Dichotomy*, 54(5) J. WORLD TRADE 699, 711 (2020).
[26] Andrew D. Mitchell & Jarrod Hepburn, *Don't Fence Me in: Reforming Trade and Investment Law to Better Facilitate Cross-Border Data Transfer*, 19 YALE J. L. & TECH. 182, 196-98 (2017).
[27] Shin-yi Peng, *Autonomous Vehicle Standards Under the Technical Barriers to Trade Agreement Disrupting the Boundaries?*, *in* ARTIFICIAL INTELLIGENCE AND INTERNATIONAL ECONOMIC LAW: DISRUPTION, REGULATION, AND RECONFIGURATION, *supra* note 15, 121, 128.
[28] *See generally* U.N. Dep't Econ. & Soc. Aff., Stat. Div., Central Product Classification (CPC) Version 2.1, ST/ESA/STAT/SER.M/77/Ver.2.1 (2015).

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this principle, GATS can be applied to providing digital services. However, even if international trade driven by AI is determined to fall under the jurisdiction of GATS, the complete classification of such services into traditional service categories remains challenging. The WTO dispute settlement body agrees that GATS constrains digital business activities.[29] As a result, GATS seems capable of addressing the evolution of services from analog to digital, from offline to online. The technology-neutral interpretation of GATS enables AI services to be easily categorized in various ways. Consequently, when reviewing specific services driven by artificial intelligence, WTO members may present conflicting demands regarding the level of commitment under GATS.

Within the framework of the GATS, obligations concerning market access and national treatment depend on a member party's commitment schedule.[30] However, these provisions do not include obligatory regulations for cross-border service supply mode classification nor guide service classification or industry representation in a WTO member's commitment schedule. The "Arrangements on Initial Commitments in Trade in Services: Explanatory Notes" partly addresses certain aspects regarding members' description of committed sectors and subsectors.[31] According to the relevant provisions of "Arrangements on Initial Commitments for Trade in Services: Explanatory Notes," members typically categorize sectors and sub-sectors based on the "Classification of Service Sectors" revised by the Secretariat. To further define sector classification, one should follow the United Nations' "Central Product Classification" rules or other internationally recognized classification standards, such as the classification method in the "Annex on Financial Services." The latest "Central Product Classification 2.1" version was published before August 11, 2015, following legal services (code 821) encompassing various sub-categories.[32] However, besides legal services, AI lawyers could also be considered as internet telecommunication services (code 842), online content services (code 843), data transmission services (code 8415), and even database services (code 844).[33] It's important to note that GATS classification is exclusive, meaning any specific service should only belong to one category.

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[29] *See generally China — Publications and Audiovisual Products* Appellate Body Report, *supra* note 23.

[30] Susannah Hodson, *Applying WTO and FTA Disciplines to Data Localization Measures*, 18(4) WORLD TRADE REV. 579, 586 (2019).

[31] *See generally* Chin & Zhao, *supra* note 24.

[32] Namely, legal advice and representation services relating to criminal law (code 82 110), legal advice and representation services relating to other areas of law (code 82 120), legal documentation and attestation services, other legal services (code 82 130), arbitration and mediation services (code 82191) and other legal services (not enumerated) (code 82199).

[33] Because AI is a huge data processor, it may depend on important database functions.

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The "Core Product Classification Version 2.1" text provides explanatory rules for this issue. When a service can be classified into two or more categories on the surface, the classification should be as follows: (a) The category with the most specific description should take priority over the more general description. (b) Composite services formed by combinations of different services that cannot be classified according to (a) should, under applicable standards, be considered as composed of services endowed with their fundamental characteristics, (c) When a service cannot be classified according to (a) or (b), it should be classified under the category that appears last in the sequence of equally worthy numerical values.[34] Services that cannot be classified according to the rules above should be categorized under the most closely related category of services. Assuming that legal services are more specific than online content services, the AI lawyer, Ross, should be classified as a legal service. However, in the case of China's electronic payment dispute, the panel of experts questioned this approach, suggesting that the issue could be more complex. As a result, we can only confidently determine which service is more specific than the disputed service if we conduct a detailed examination.[35] Determining the criteria of "more specificity," "fundamental characteristics," and "final occurrence" is not a straightforward task in practical scenarios.

The WTO Appellate Body has repeatedly emphasized whether a specific measure should be reviewed under GATT or GATS based on a case-by-case analysis. While not all AI qualifies as tradable services, AI-driven digital services are increasingly being marketed and sold across borders. Defining AI applications as processes and production methods rather than a new category of services could lead to a blanket application of GATS as long as AI-operated digital services fall under a general entry in the services classification list.[36] Even if AI is recognized as a service, it could potentially evade the established service classifications under GATS, triggering debates over whether the interpretation of this issue should follow the initial liberalization commitments made by WTO members. The development of AI has intensified WTO members' debates over the classification of goods and services, making it more challenging to differentiate commitments on market access and national treatment obligations for specific service sectors under GATS.

The existing provisions of GATT and GATS need to reflect the evolving commercial realities. Products delivered electronically can be considered under GATS mode 1 without requiring tariffs, whereas the same goods traded globally as physical entities are subject to taxation. This classification

[34] U.N. Dep't Econ. & Soc. Aff., Stat. Div., *supra* note 28.
[35] *See generally* Panel Report, *China — Certain Measures Affecting Electronic Payment Services*, WTO Doc. WT/DS413/R (adopted Aug. 31, 2012).
[36] *See generally US — Gambling* Panel Report, *supra* note 22.

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dilemma becomes more pronounced in the era of artificial intelligence. Some scholars propose the establishment of GATS mode 5, which would apply to services embedded in the process of goods manufacturing. For instance, services that contribute a higher value share to the final product than the physical components.[37] While mode 5 is believed to enhance economic efficiency and clarify the distinction between goods and services trade, the concept still needs to be in its formative stages, lacking a widely accepted definition. Regarding the qualitative assessment of AI applications at the application level, given the ambiguity in the existing trade rules about the expansion and interpretation of product definitions across various categories, an approach could involve initially categorizing the components of composite AI separately based on existing rules, followed by a deeper exploration of regulatory standards specific to AI products.[38]

B. Challenges in the Application of "Public Morality Exception"

The public morality exemption is a common rule in global trade agreements. It lets countries deviate from their commitments to safeguard their important local public morality.[39] Since then, there have been more and more disputes involving public morality.[40] The significance of addressing the interplay between trade and non-trade concerns in the context of public morality has emerged as a pressing challenge within the WTO. The specific meaning of public morality has great ambiguity and is constantly evolving with the development of society.[41] The emergence of AI has brought forth complex ethical issues, particularly ones involving public morality, and even more challenging to address. One of these ethical dilemmas pertains to whether WTO members can reject international trade driven by AI based on the values inherent in AI programming that may not align with the local public morals. Scholars from Taiwan illustrated this issue with an example from an experimental simulation game called "Moral Machine," conducted by the Massachusetts Institute of Technology (hereinafter "MIT").[42] In late 2018, MIT conducted the "Ethical Machine" simulation to study how video

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[37] MARINA FOLTEA, HOW TO INCLUDE 'MODE 5' SERVICES COMMITMENTS IN BILATERAL FREE TRADE AGREEMENTS AND AT MULTILATERAL STAGE? 10 (2018).
[38] Shen & Zhao, *supra* note 8.
[39] *See generally* Panagiotis Delimatsis, *Protecting Public Morals in a Digital Age: Revisiting the WTO Rulings on US—Gambling and China—Publications and Audiovisual Products*, 14(2) J. INT'L ECON. L. 257 (2011).
[40] *See generally* Appellate Body Report, *European Communities — Measures Prohibiting the Importation and Marketing of Seal Products*, WTO Doc. WT/DS400/AB/R; WT/DS401/AB/R (adopted June 18, 2014) [hereinafter *EC — Seal Products* Appellate Body Report].
[41] *See generally* Andrew Halpin, *Austin's Methodology? His Bequest to Jurisprudence*, 70(1) CAMBRIDGE L.J. 175 (2011).
[42] Han Wei Liu & Ching Fu Lin, *Artificial Intelligence and Global Trade Governance: A Pluralist Agenda*, 61(2) HARV. INT'L L.J. 301, 322 (2020).

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game players decide in unavoidable collisions. The primary objective of this study was to discern inherent moral inclinations among individuals concerning pedestrians of varying genders, age groups, and social strata within hypothetical vehicular collision scenarios. Employing a comprehensive dataset comprising 40 million discrete judgments rendered by many participants from 233 distinct legal jurisdictions, the researchers affiliated with MIT undertook an extensive analysis. This map revealed the diversity of public morals within both "modern institutions" and "deep cultural traits."

The findings suggest that various factors influence ethical choices in simulated scenarios. East Asian countries like China, Japan, and South Korea, influenced by hierarchical norms like Confucianism, tend to value the elderly over the young. In contrast, Western countries like the United States and Europe prioritize the young over the elderly. This cultural difference impacts how self-driving car algorithms handle unavoidable collisions. Western countries are more prone to prioritize saving the young, while East Asian countries lean towards valuing the elderly. Cultural and ethical factors play a role in shaping these preferences.

As previously discussed, there remains to be more certainty about whether autonomous vehicles should be categorized as services or goods. Let's assume that autonomous vehicles are classified as services. Within the framework of the WTO, it remains an open question whether or not a member state possesses the right to refuse incoming imports of autonomous vehicles from another member state in instances where the values of the artificial intelligence design employed in the vehicles clash with the domestic moral norms of the recipient state.[43] Measures prohibiting actions such as murder are based on fundamental human moral values and are in line with the collective ethical principles of a global society.[44] These measures are relatively straightforward to identify.

However, there needs to be more debate regarding whether measures rooted in regional value systems fall within the scope of public morality. In specific disputes within the WTO, invoking exceptions based on public morality necessitates meeting the first criterion: the disputed trade measures are implemented to safeguard public morals.[45] The resulting issue is: What constitutes public morality? Who defines public morality? In the US gambling case at the WTO, "public morality" was interpreted as standards of correct and incorrect behavior upheld by a community or nation or

[43] *See generally id.*

[44] *See generally* BRIAN D. LEPARD, RETHINKING HUMANITARIAN INTERVENTION: A FRESH LEGAL APPROACH BASED ON FUNDAMENTAL ETHICAL PRINCIPLES IN INTERNATIONAL LAW AND WORLD RELIGIONS (2015).

[45] *Id.* (The second condition is that the disputed measure is necessary and that there is a strong link between it and the purpose of protecting public morals; the third condition is that the requirements of the first paragraph of Article 20 of the General Agreement on Tariffs and Trade (GATT) are met).

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representing that community or nation. Therefore, it is imperative to grant members a certain degree of flexibility when defining and executing the concept of public morality.[46] Yet, the expert panel should have discussed the exact boundaries of members' rights to independently define and use public morality.[47] In the European Union Seal case, the WTO Dispute Settlement Panel further elaborates on the criteria for determining whether the purpose of a measure is based on addressing specific concerns of public morality within the territory of that member state. There are two conditions: (1) whether such concerns exist in that society, and (2) whether these concerns constitute a public morality established within the member state according to its values.[48] It is necessary to consider where the boundaries should be drawn for individual WTO member states to define exceptions to public morality caused by AI to prevent the abuse of public morality exception provisions.

Assuming these autonomous vehicles are treated as commodities, can WTO member country A request a redesign of the decision-making process for unavoidable collisions based on the values implicit in the AI design, claiming a misalignment with the nation's public morals? Does such a demand violate the WTO's TBT Agreement? Article 2.1 of the TBT Agreement requires members to treat imported products as favorably as domestic or other member products. Article 2.2 requires members to prevent technical regulations from causing unjustified hindrances to global trade. Restrictions on trade through technical regulations should be minimal and only as needed to achieve valid goals while considering associated risks. Legitimate goals include national security, preventing fraud, ensuring safety (for humans, animals, and plants), and environmental protection. When evaluating risks, consider scientific info, tech data, and the intended use of processing techniques or products.

In the EU Seal case, the WTO Panel stated that although Article 2.2 legitimate objective doesn't directly include public morals, GATT Article XX (a) and GATS Article 14 cover public morals as a legitimate objective. Considering that the preamble refers to the "Agreement on TBT," which elaborates on GATT, public morals should also be included among the legitimate objectives in Article 2.2. Thus, understanding public morals as per GATT Article XX (a) and GATS Article 14 can guide the identification of valid goals under Article 2.2. This could be pertinent to limiting technical regulations for safeguarding public morals.[49]

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[46] *See generally* Appellate Body Report, *United States — Measures Affecting the Cross-Border Supply of Gambling and Betting Services*, WTO Doc. WT/DS285/AB/R (adopted Apr. 20, 2005).
[47] *See generally* LEPARD, *supra* note 44.
[48] *See generally EC — Seal Products* Appellate Body Report, *supra* note 40.
[49] *See generally* Panel Report, *European Communities — Measures Prohibiting the Importation and Marketing of Seal Products*, WTO Doc. WT/DS400/R; WT/DS401/R (adopted Nov. 25, 2013).

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A thorough assessment is necessary to satisfy the "necessity" requirement in Article 2.2 of the Agreement. The WTO's Appellate Body clarified this in the *US — Mexico Tuna II* case. The ruling specifies that several factors must be considered to determine whether a technical regulation meets the "necessary" criteria of Article 2.2. These factors include (1) the degree to which the regulation contributes to its legitimate objective, (2) the effect of the regulation on trade, and (3) an evaluation of the risks and consequences if the intended goal is not achieved. Additionally, a comparison should be made between the regulation in question and possible alternative measures.[50] Moreover, under the Agreement, the authority responsible for determining and certifying which type of vehicles meet such ethical standards as opposed to others that do not and to what extent such certification can meaningfully contribute to the intended objectives are all matters that need to be considered.[51]

C. Cross-Border Use and Regulation Path of AI

Starting from a national perspective, governments possess ample justification to regulate AI-driven commerce, given the inherent risks associated with the cross-border utilization of AI.[52]

AI systems, often developed within specific socio-technical contexts, are tailored to environments and datasets imbued with regional characteristics. This localization of AI systems raises significant challenges when these systems are deployed in different global contexts, leading to potential inefficiencies and risks.

A vivid illustration of this challenge is Volvo's experience with autonomous vehicles. In Sweden, Volvo conducted extensive trials and training to ensure their self-driving cars could successfully navigate local fauna like elk. However, when these vehicles were tested in Australia, they struggled to recognize and evade kangaroos. This failure was due to the rarity of kangaroos in Sweden, leading to their absence in the AI's training dataset. This example underscores a critical issue: enhancing AI models for global applicability requires meticulous attention to localized nuances.[53] The cross-border utilization of AI carries certain risks and obstacles.

Typically, AI systems learn to identify objects by observing numerous examples. To teach an AI system to recognize a cat, it needs to be exposed

[50] *See generally* Appellate Body Report, *United States — Measures Concerning the Importation, Marketing and Sale of Tuna and Tuna Products*, WTO Doc. WT/DS381/AB/R (adopted June 13, 2012).
[51] *See generally* Liu & Lin, *supra* note 42.
[52] Chander, *supra* note 17, at 117.
[53] Naaman Zhou, *Volvo Admits Its Self-Driving Cars Are Confused by Kangaroos*, THE GUARDIAN (July 1, 2017) https://www.theguardian.com/technology/2017/jul/01/volvo-admits-its-self-driving-cars-are-confused-by-kangaroos.

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to thousands, or even millions, of images of cats. Subsequently, through automated learning, the AI system can considerably identify images of cats it has never encountered. In the case of Volvo, the AI system was trained on images and movement patterns of local Swedish animals like moose. As a result, the vehicle can effectively identify and respond to moose when driving on Swedish roads. However, since kangaroos are uncommon in Sweden, Volvo's development team in Sweden did not consider them and, therefore, did not provide the system with a sufficient number of kangaroo examples. This oversight led to the system's inability to handle kangaroo encounters accurately.[54] This issue is not unique to Volvo but rather a common phenomenon in artificial intelligence. The implications of these shortcomings are far-reaching. Researchers at Facebook have reported that the top five popular public image recognition systems failed to accurately identify common household items from non-Western countries, like certain types of soap and spices. This limitation can have serious repercussions. For instance, an Asian New Zealand man was denied a passport photo update because the AI system could not correctly interpret the characteristics of Asian eyes.[55] These examples highlight the limitations of current AI systems in understanding and interpreting diverse global contexts. The government's response in the era of AI is contingent on its economic, social, and political foundations. The geographical specificity of AI underscores the pressing need for governments to regulate cross-border AI.[56] There's a necessity to establish new standards for AI industrial products that are globally applicable yet sensitive to local contexts. The global trade system should prioritize respecting local values and cultural backgrounds when addressing AI-related issues. This approach demands a multifaceted strategy involving various stakeholders.

Firstly, governments need to develop robust regulatory frameworks that can adapt to the rapid evolution of AI technologies. These frameworks should focus on ensuring that AI systems are safe, secure, and respectful of privacy and human rights. They should also encourage transparency and accountability in AI development and deployment. For instance, AI systems used in critical areas like healthcare, transportation, and law enforcement should undergo rigorous testing and certification processes to ensure they meet high safety and ethical standards.

Secondly, there's a need for international collaboration to harmonize AI regulations. Given the global nature of AI development and deployment,

[54] Dani Deahl, *Volvo's Self-Driving Cars Are Having Trouble Recognizing Kangaroos*, THE VERGE, (July 3, 2017), https://www.theverge.com/2017/7/3/15916076/volvo-self-driving-cars-trouble-recognizing-kangaroos.
[55] Niels Quinten, *The Problem of Unknowns in Artificial Intelligence*, NIELS QUINTEN'S BLOG (Jan. 10, 2021), https://nielsquinten.com/2021/01/10/the-problem-of-unknowns-in-artificial-intelligence/.
[56] Chander, *supra* note 17, at 117.

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unilateral regulatory approaches can lead to fragmented and inconsistent standards. International bodies like the United Nations, the WTO, and the International Telecommunication Union can play pivotal roles in facilitating dialogue and consensus-building among nations. Through these platforms, countries can share best practices, develop common standards, and address transnational challenges like data privacy, cybersecurity, and ethical AI.

Furthermore, the private sector, particularly AI developers and technology companies, must be actively involved in this regulatory process. They possess the technical expertise and practical experience necessary to understand AI's capabilities and limitations. It is crucial for them to collaborate with governments and international organizations to ensure that AI systems are developed with a global perspective in mind. This collaboration can lead to the creation of AI systems that are not only technically proficient but also culturally sensitive and ethically sound.

In addition to government and private sector involvement, input from civil society, including consumer advocacy groups, human rights organizations, and academic institutions, is vital. These groups can provide valuable perspectives on the societal impacts of AI, ensuring that the voices of various stakeholders, including those most likely to be affected by AI technologies, are heard. Their involvement is essential in identifying potential risks and unintended consequences of AI deployment, thereby contributing to the development of more inclusive and equitable AI policies.

Moreover, addressing the issue of data representation in AI systems is of paramount importance. Data is the lifeblood of AI, and the quality and diversity of the data used in training AI systems directly impact their performance and reliability. Ensuring that datasets are diverse and representative of different populations and environments is crucial. This can be achieved by encouraging data collection and sharing practices that are inclusive and cover a broad range of demographic and geographic variables.

Furthermore, there is an increasing need for interdisciplinary research and development in AI. Combining expertise from fields such as computer science, sociology, psychology, and ethics can lead to the creation of AI systems that are more attuned to human needs and societal norms. Interdisciplinary teams can work together to identify and address potential biases in AI systems, ensuring that they operate fairly and justly across different cultural and social contexts.

Education and public awareness are also key components of a comprehensive AI strategy. Governments should invest in educational programs that raise awareness about AI and its implications among the public. This includes not only technical training but also education about the ethical, legal, and social aspects of AI. By fostering a more informed public discourse around AI, governments can help build a more engaged and

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knowledgeable citizenry, capable of contributing meaningfully to the development of AI policies and practices.

Finally, it is essential to establish mechanisms for ongoing monitoring and evaluation of AI systems. As AI technologies continue to evolve, regulatory frameworks and standards must be regularly reviewed and updated. This includes conducting impact assessments to understand the real-world effects of AI systems and making necessary adjustments to ensure that they continue to serve the public interest.

IV. REGULATING AI UNDER THE WTO FRAMEWORK: A NEW PARADIGM FOR COOPERATION

AI has brought about a "dual disruption" in law. Firstly, it has impacted the essence of legal regulations. Secondly, it has transformed regulatory methods, shifting from pursuing shaping behaviors through normative principles or laws to adopting non-normative technological management as a novel regulatory approach. Enhanced institutional flexibility, both within and outside the WTO, becomes imperative. To a certain extent, the concept of "supranational soft law" could alleviate the current inadequacies in governing rules about AI.[57] The focus should shift away from rules' specificity, stability, and predictability and instead emphasize their adaptability, consistency, and optimal design. Given the unique challenges posed by AI and the divergent views held by governments regarding "disruptive technologies," making progress in regulating AI under the traditional WTO "consensus-based" decision-making approach is challenging. An alternative paradigm could be explored, characterized by the formation of increasingly informal rules and standards.[58] This alternative is based on transitioning from WTO's "consensus-based decision-making by members" to a "like-minded members' consensus."[59]

"The Joint Declaration of the WTO advocates addressing the uncertainty and lag in applying emerging technologies such as artificial intelligence. There exists ambiguity and delay concerning the applicability of new technologies like AI within the framework of the WTO." The multilateral progress of the WTO has come to a halt. Even without considering geopolitical issues, WTO members are deeply divided on trade policy matters, and currently, there needs to be more mutual trust among them. The GATS is most relevant to AI within the WTO.[60] While some aspects of the

[57] Shen & Zhao, *supra* note 8, at 133-34.
[58] Joost Pauwelyn, *Rule-Based Trade 2.0? The Rise of Informal Rules and International Standards and How They May Outcompete WTO Treaties*, 17(4) J. INT'L ECON. L. 739, 739-41 (2014).
[59] Part of the reason for the stagnation of the WTO trade negotiations is its traditional "consensus" approach to decision-making.
[60] Meltzer, *supra* note 4.

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technology-neutral principle have been addressed through dispute resolution, disputes remain regarding whether GATS commitments encompass AI-driven services. Additionally, there still needs to be more regulations within the WTO concerning topics closely tied to AI-driven services, such as cross-border data flow, source code, computer facility locations, etc. Based on consensus and the single undertaking approach, the decision-making process within the WTO hampers members' ability to adjust the agenda. In light of the failure of pure multilateralism, the joint statement proposed during the 11th WTO Ministerial Conference presents new prospects for development.[61]

The WTO joint statement introduces an initiative without a specific definition. This initiative can be broadly interpreted as a negotiation tool that a group of WTO members employs. These members initiate negotiations on specific issues when consensus decision-making rules are not followed. The objective is to proactively address issues that are becoming more pertinent to the WTO system. This is achieved through forward-looking and results-driven discussions and negotiations. The WTO joint statement encourages inclusivity among all WTO members and aims to maximize participation.[62] The WTO Joint Statement Initiative generally exhibits the following characteristics: Firstly, it operates as an inclusive agreement, allowing any WTO member to join freely. Secondly, it is a negotiation tool driven by like-minded developed country members. It aims to explore opportunities in sectors where WTO regulations could be improved and precedents such as electronic commerce are limited. Lastly, there needs to be a clear definition or discussion regarding the outcome of the WTO Joint Statement Initiative negotiations; this becomes multi-lateralized among WTO members at a certain stage. At the 11th Ministerial Conference of the WTO in 2017, negotiations focused on four joint statement initiative issues: e-commerce, investment promotion and development, micro, small, and medium-sized enterprises, and domestic services regulation. As depicted in Appendix Table 1, although the e-commerce joint statement initiative,[63] which is most relevant to artificial intelligence, incorporates clauses related to AI aspects like personal data protection, it does not explicitly include AI provisions similar to the DEPA.

Including a dedicated agenda item on AI should be advocated for and separately addressed within the WTO Joint Statement on E-commerce

[61] Fiama Angeles, *Are Joint Statement Initiatives the World Trade Organization's Future?*, TRADEEXPERETTES (Feb. 22, 2021), https://www.tradeexperettes.org/blog/articles/tag/Fiama+Angeles.

[62] GATS art. 2, ¶ 3.

[63] There is no reference to digital trade in the WTO, and discussions related to digital trade rules are usually conducted under the framework of e-commerce. *See* Manfred Elsig & Sebastian Klotz, *Digital Trade Rules in Preferential Trade Agreements: Is There a WTO Impact?*, 12 GLOB. POL'Y 25, 26 (2021).

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negotiations. Since members utilize AI designs that may not align with their respective national/regional values, thus invoking the potential for "public moral exception", it is feasible to incorporate fundamental principles based on values into the AI topic related to international trade. These principles, akin to those proposed by the Organisation for Economic Cooperation and Development (hereinafter "OECD"), encompass inclusivity, sustainable development and well-being, human-centric values, fairness, transparency and interpretability, robustness and security, and accountability. [64] Furthermore, negotiations advocated by the WTO joint statement can enhance global governance of AI by improving transparency, increasing predictability, and establishing collaborative mechanisms for interoperable regulations. The definition and scope of AI-driven trade should be clarified, and the outcomes of the negotiations should elucidate whether they will take the form of an independent agreement or necessitate modifications to existing WTO provisions. In the case of an independent agreement, the relationship with the WTO needs to be expounded upon, along with distinctions from the scopes of applicable agreements such as GATS, GATT, and the Agreement on Trade-Related Aspects of Intellectual Property Rights. If modifications to existing WTO provisions are required, the approach to these modifications should be clarified. Adopting the negative list approach necessitates a comprehensive examination of the harmonization of commitments under the WTO joint statement with prior commitments. However, the affirmative list approach offers a more straightforward and uncomplicated alternative.

The importance of harmonizing and unifying AI regulations cannot be overstated, as highlighted by the WTO's "Agreement on Technical Barriers to Trade" (Articles 2.4, 2.6, 2.7). To establish guidelines for AI, internationally recognized standards set forth by esteemed entities such as the International Organization for Standardization and the Institute of Electrical and Electronics Engineers may serve as a foundation. Therefore, collaborative efforts in standardization activities can constitute a vital component within the overall framework of WTO joint statements. Given the highly technical nature of artificial intelligence, participation from businesses and other international organizations should also be incorporated. Considering the varying levels of development, technological expertise, and regulatory capacities among parties involved in the WTO joint statement initiative on artificial intelligence, a flexible commitment framework could be negotiated. This framework would allow certain members to make deeper commitments while enabling others to make shallower ones. It should also grant participants in the WTO joint statement initiative the freedom to select terms they are willing to adhere to, accommodating the diverse needs of

[64] *How Can We Ensure That AI Benefits Society as a Whole?*, OECD, https://www.oecd.org/digital/artificial-intelligence/ (last visited June 30, 2024).

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different participants. An approach with dual levels of commitment could better uphold the relative cohesion of the negotiation framework for the WTO joint statement initiative and facilitate agreements among stakeholders in AI-driven trade. The DEPA between Chile, New Zealand, and Singapore could serve as a model to inform the WTO joint statement initiative negotiations. This would offer valuable insights into establishing a successful framework.

In international trade, power has conventionally been attributed to the economic size of nations. Historically, larger economies have wielded the threat of closed markets to coerce smaller economies into opening their own.[65] However, a different strategic approach has emerged beyond the confines of the WTO. The "Concerted Open Plurilateralism" approach includes smaller nations working together openly. Initiatives like DEPA and SADEA play a key role, focusing on AI and international trade collaboration. This approach has three main focal points: Firstly, it's rooted in an open accession agreement. Secondly, negotiations within this Agreement are structured to support and complement the multilateral trade system. Lastly, the documents of these plurilateral arrangements encompass mechanisms to ensure their seamless integration and alignment with the WTO over time.[66] The plurilateral approach builds upon WTO rules, seeking cooperation with like-minded economies to explore new regulatory dimensions within high-quality trade agreements that bolster and supplement the existing WTO framework.[67]

In AI, DEPA supports an ethical AI governance framework that follows internationally agreed principles, promoting the responsible use of AI. This includes the notions that AI should be transparent, fair, and interpretable and must adhere to human-centered values. While the agreements may lack binding force, the "soft" approach to rule-making has proven effective within the Asian context. The appeal of DEPA lies primarily in its narrow focus on digital issues and secondary in its avoidance of negotiations dominated by major powers.

The innovation of DEPA lies in its emphasis on fostering dialogue with the private sector and ensuring the interoperability, compatibility, and coherence of new trade rules with domestic digital regulations. These aspects are crucial for the essential development of artificial intelligence. China has applied for membership in DEPA, which positions us to lead the formulation of digital economic agreements similar to DEPA and SADEA in the future.

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[65] *See generally Digital Economy Partnership Agreement Briefing for the Economic Development, Science and Innovation Committee*, MINISTRY OF FOREIGN AFFS. & TRADE (2020), https://www.mfat.govt.nz/assets/Trade-agreements/DEPA/Briefing-for-the-Economic-Development-Science-and-Innovation-Select-Committee-for-Parliamentary-Treaty-Examination.pdf.

[66] *See generally* Haozheng Jiang, *Paradigm Shift of Regional Economic Cooperation Mechanism in East Asia: The Case of RCEP and CJKFTA*, 8(1) RSCH. ECON. & MGMT. 11 (2023).

[67] MINISTRY OF FOREIGN AFFS. & TRADE, *supra* note 65.

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These agreements can incorporate AI regulatory clauses aligned with our national values. As previously mentioned, DEPA could also serve as a valuable reference for the WTO. The modular approach utilized within DEPA might aid in addressing trade challenges related to AI that have impeded WTO agreements. Consequently, this integration could enable the WTO to embrace the digital realm actively. Otherwise, as global business becomes increasingly AI-driven, the WTO's relevance within the global economic framework might diminish.

The Agreement, operating within the framework of the WTO, functions as a point of reference for promoting principles and obligations about fostering sound regulatory practices, cooperation, and international standards. AI standards interoperability has been significantly improved due to its crucial role.[68] The "Agreement on Technical Trade Barriers" Article 2.4 stipulates that

> [w]hen developing technical regulations and relevant international standards already exist or are under development, members shall use these international standards or their relevant portions as the basis for their technical regulations, unless these international standards or their relevant portions are ineffective or inappropriate in achieving their legitimate objectives, for example, due to fundamental climatic factors, geographical factors, or fundamental technical issues.

This provision constitutes the core of the "Agreement", aiming to harmonize diverse domestic standards to enhance production efficiency and promote international trade. In essence, members of the "Agreement" must ensure the presence of international standards on relevant matters when formulating technical regulations. If such standards exist, the primary components or fundamental principles of members' technical regulations must adhere to these international standards, which consequently become a vital foundation for their domestic regulations. This imparts a legal obligation upon Article 2.4 of the "Agreement". Meanwhile, international standards fall under the category of soft law, possessing a voluntary rather than mandatory nature. This duality confers both a voluntary and obligatory aspect to the legal character of international standards as outlined in Article 2.4 of the "Agreement".[69] Although the "Agreement" emphasizes the parties' obligations to incorporate international standards into regulations, which promotes the interoperability of standards, it does not elucidate the actual meaning of international standards. This necessitates seeking answers

[68] Peng et al., *supra* note 15, at 99.

[69] *See generally* MARIANNA B. KARTTUNEN, TRANSPARENCY IN THE WTO SPS AND TBT AGREEMENTS: THE REAL JEWEL IN THE CROWN (2020).

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from relevant content within the "Agreement" and WTO cases.[70] The "Agreement" does not explicitly define international standards, showcasing constructive ambiguity.[71] The international coordination process stipulated in the "Agreement" is not rigid but allows members to deviate from international standards under certain conditions.

Intercommunication between standards is essential, as interoperability is crucial for ensuring artificial intelligence's performance, privacy, and security. If two autonomous vehicles adhering to different standards are driving on the road, their inability to communicate could inadvertently lead to an accident. When two international bodies independently decide to formulate distinct standards to address safety concerns related to autonomous vehicles, they are likely to end up with two distinctly different or even conflicting international standards. The absence of a common international standard as the regulatory foundation among nations will pose significant barriers to AI trade. The Agreement lacks a definition for international standards. Unlike the WTO's Agreement on the Application of Sanitary and Phytosanitary Measures, this document lacks an established roster of global standardization bodies. In 2000, the "Agreement" committee clarified the "Six Principles for the Development of International Standards, Guidelines, and Recommendations related to Articles 2 and 5 of the Agreement on TBT[72] and Annex 3" to offer additional guidance.[73] The six principles encourage international standard-setting bodies to adhere to principles and procedures when developing international standards, guidelines, and recommendations. This ensures transparency, openness, fairness, consensus, effectiveness, relevance, and coherence.[74] International standards based on these principles are more likely to be considered "relevant international standards" within the Agreement.[75] To achieve this, the international standard-setting bodies must follow a systematic approach

[70] For example, one of the points of contention in the *U.S. — Mexico Tuna II* case was whether the standards set out in the Agreement on the International Dolphin Conservation Program fall within the scope of international standards, and if they do, the U.S. should apply them to technical regulations under Article 2.4 of the TBT Agreement instead of the U.S. dolphin-safe standards. If so, the United States should have applied the Agreement on the International Dolphin Conservation Program standards, rather than the United States dolphin-safe standards, to its technical regulations in accordance with Article 2.4 of the TBT Agreement.

[71] *See generally* Erik N. Wijkström & Devin McDaniels, *Improving Regulatory Governance: International Standards and the WTO TBT Agreement*, 47(5) J. WORLD TRADE 1013 (2013).

[72] *Principles for the Development of International Standards, Guides and Recommendations*, WTO, https://www.wto.org/english/tratop_e/tbt_e/principles_standards_tbt_e.htm (last visited June 30, 2024).

[73] Agreement on Technical Barriers to Trade Annex 3, Dec. 4, 1979, Marrakesh Agreement Establishing the World Trade Organization, Annex 1A, 1868 U.N.T.S. 120 [hereinafter TBT Agreement].

[74] MINISTRY OF FOREIGN AFFAIRS & TRADE, *supra* note 65.

[75] TBT Agreement, *supra* note 73, art. 2.

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that prioritizes these principles to maintain the quality and credibility of the standards they develop.

In the context of international trade's reliance on AI and its collaborative role, there must be fairer and just supranational AI standards worldwide. The "Agreement" outlines six principles emphasizing the significance of consistency to avoid redundancy or overlap among international standardization bodies. Collaboration and coordination among these standards are imperative. The development of AI standards fundamentally occurs against a backdrop of Balkanization, heavily influenced by private entities. To successfully implement the "Agreement", it is necessary to jointly formulate international AI standards based on public-private partnerships. This aims to overcome standards competition and fragmentation.[76]

Technological advancements often serve as catalysts for legal issues, while legal transformations may constitute essential responses to technological changes.[77] The development of AI technology will inevitably bring about challenges to international law. The progression of AI technology brings about several legal complexities that can be categorized into four distinct areas. Firstly, it is necessary to govern newly emerged behaviors and create specific laws to address them. Secondly, the application of existing laws to these behaviors is uncertain and calls for a need for clarity. Thirdly, current regulations may not have considered the impact of new technologies and may inappropriately include or exclude certain actions. Finally, some laws may have been established on outdated premises and are no longer relevant.[78]

V. AI AND THE WTO FRAMEWORK: HOW TO ACHIEVE EFFECTIVE GOVERNANCE AND COOPERATION IN THE DIGITAL ERA

The interaction between law and Technology often involves how the legal system handles activities empowered by new Technology and the relationships among entities engaged in these activities.[79] In international trade law, it's crucial to anticipate the challenges posed by the widespread use of AI within the existing legal framework. While debates about the potential demise of the WTO have been abundant in recent years, it's undeniable that the WTO remains the paramount intergovernmental trade organization globally. The rules of the WTO continue to play a significant

[76] Alberto Oddenino, *Digital Standardization, Cybersecurity Issues and International Trade Law*, 51 QUESTION INT'L L. 31, 31 (2018).
[77] *See generally* Moses, *supra* note 5.
[78] Lyria Bennett Moses, *Why Have a Theory of Law and Technological Change?*, 8(2) MINN. J. L. SCI. & TECH. 589, 595 (2007).
[79] *Id.* at 594.

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role in shaping the development and deployment of AI in international trade. Therefore, it is important to explore how to achieve effective governance and cooperation in the digital era, both within and beyond the WTO.

International trade driven by AI involves the trade of goods and services delivered through AI machine learning algorithms or employing these algorithms. Both forms of delivery raise WTO classification challenges. The essential nature of AI machine learning algorithm delivery is essentially digital delivery, which can be further categorized as follows according to the form of digital delivery:

1. Pure digital service delivery, such as plug-and-play AI solutions.
2. Digital delivery involving goods and services, such as AI-enabled 3D printing and autonomous vehicles.[80]
3. The focus is on classifying actual delivery that includes goods and services in trade. With the rapid advancement of Technology, AI-embedded products or services will further complicate WTO classification, making it extremely challenging to classify a project based on a fixed foundation.[81]

One of the main issues that AI raises for trade governance is the lack of a common definition and classification of AI and its related products and services. AI is a broad term that covers various technologies that enable machines to perform tasks that normally require human intelligence, such as reasoning, learning, decision-making, and recognition. There is no universal agreement on how to define and classify AI and its related products and services, such as software, hardware, data, and platforms. Different countries and organizations may have different criteria and approaches to categorize AI and its applications. This creates uncertainty and inconsistency in the application of existing trade rules and commitments, such as tariffs, subsidies, intellectual property rights, technical barriers to trade, and services trade. The lack of a common understanding and taxonomy of AI creates challenges for trade governance, which is the set of rules and institutions that regulate and facilitate international trade. The existing trade rules and commitments may not be adequate or appropriate to deal with the specificities and complexities of AI and its related products and services.

Moreover, AI poses new ethical, social, and human rights concerns that may require new norms and standards to ensure the responsible and trustworthy development and use of AI. For example, AI may affect the privacy, security, accountability, transparency, and fairness of trade

[80] AI-enabled cross-border transactions for 3D printing are delivered digitally. In the case of product design services, for example, on the one hand, a 3D printed CAD file is delivered to a consumer containing a design service that crosses national borders, and GATS may therefore apply; on the other hand, the 3D printed CAD file is printed as a good at the point of consumption, and may therefore also be subject to GATT.

[81] *See generally* Liu & Lin, *supra* note 42.

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transactions and actors. Therefore, it is important to explore how to achieve effective governance and cooperation in the digital era, both within and beyond the WTO framework, to address the challenges and opportunities of AI for trade. This may involve developing a common understanding and taxonomy of AI and its implications for trade, enhancing the existing WTO framework to accommodate the specificities and challenges of AI, exploring new plurilateral or multilateral initiatives to address the gaps and opportunities of AI for trade, and leveraging the role and contribution of other international organizations and platforms to complement and support the WTO's work on AI and trade.

Developing a common understanding and taxonomy of AI and its implications for trade means that different countries and actors should agree on how to define and classify AI and its related products and services, such as software, hardware, data, and platforms. This would help to reduce uncertainty and inconsistency in the application of existing trade rules and commitments, such as tariffs, subsidies, intellectual property rights, technical barriers to trade, and services trade. This would also help to identify the potential benefits and challenges of AI for trade, such as enhancing productivity, competitiveness, and innovation, as well as raising ethical, social, and human rights concerns. To achieve this, dialogue and collaboration among various stakeholders, such as governments, businesses, civil society, academia, and international organizations, is essential, as they have different perspectives and interests on AI and trade.

Enhancing the existing WTO framework to accommodate the specificities and challenges of AI means that the current multilateral trade rules and commitments should be updated and clarified to deal with the new features and complexities of AI and its related products and services. For example, it may be necessary to clarify the scope and coverage of existing agreements, such as the GATS, the TRIPS, and the ITA, to ensure that they apply to AI and its applications. It may also be necessary to update the schedules of commitments, which are the lists of specific obligations that each WTO member undertakes in specific sectors and modes of supply, to reflect the changes and opportunities brought by AI. Moreover, it may be necessary to strengthen the dispute settlement mechanism, which is the system for resolving trade conflicts between WTO members, to ensure that it can handle the new and complex issues arising from AI and trade.

Exploring new plurilateral or multilateral initiatives to address the gaps and opportunities of AI for trade means that some WTO members may decide to negotiate new trade rules and disciplines that go beyond the existing WTO framework, to address the specific issues and challenges posed by AI and trade. These new initiatives may be plurilateral, meaning that they involve a subset of WTO members, or multilateral, meaning that they involve all WTO members. These new initiatives may aim to develop

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new rules and disciplines, such as on data flows, data protection, data localization, AI standards, AI liability, and AI ethics. They may also aim to promote best practices and standards, such as on data quality, data governance, data interoperability, AI transparency, AI accountability, and AI trustworthiness. Furthermore, they may aim to foster cooperation and coordination on AI-related issues, such as on research and development, innovation, education, skills, and capacity-building.

Leveraging the role and contribution of other international organizations and platforms to complement and support the WTO's work on AI and trade means that the WTO should not work in isolation, but rather in collaboration and coordination with other relevant actors that have expertise and experience on AI and trade. These other actors may include other international organizations, such as the OECD, the UN, the IMF, and the World Bank, as well as other platforms, such as the Global Partnership on AI, the AI Policy Observatory, and the AI for Good Global Summit. These other actors may play a role and contribute to the WTO's work on AI and trade by providing research and analysis, policy advice and guidance, technical assistance and capacity-building, and platforms for dialogue and cooperation.

Moreover, AI is a game-changer for international trade because it can transform various aspects of trade, such as production, distribution, consumption, and regulation. AI can also create new opportunities and challenges for the multilateral trading system. Some of the benefits of AI for trade include enhancing productivity, competitiveness, and innovation, as well as facilitating cross-border data flows and digital services. Therefore, AI requires a flexible and adaptable regulatory framework that balances the interests and values of different stakeholders, such as governments, businesses, civil society, academia, and international organizations.

VI. CONCLUSION

This article has extensively explored the complex interplay between AI and international trade within the WTO framework. The advent of AI in the global trade arena poses significant regulatory challenges and opportunities. This paper has underscored the necessity for adaptable, flexible regulatory frameworks to accommodate the dynamic nature of AI and its implications for international trade.

AI's impact on trade dynamics has been profound, necessitating a reevaluation of existing WTO provisions, particularly in the context of the dichotomy between goods and services and the public morality exceptions. The classification challenges posed by AI, due to its dual nature as both a product and a service, call for a nuanced understanding and application of WTO rules. The ambiguity in classifying AI-driven products and services

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under existing WTO agreements like the GATT and the GATS highlights the need for a more evolved and informed approach.

Furthermore, the application of the "public morality exception" within the WTO framework has gained prominence in light of AI's ethical and moral implications. The diverse cultural and ethical perspectives on AI's use in different regions underscore the importance of incorporating public morals into international trade considerations. However, the challenge lies in balancing these moral imperatives with the principles of non-discrimination and market access that underpin the WTO agreements.

The research also delves into the potential of collaborative agreements and joint initiatives, such as the DEPA, in regulating AI within international trade. These agreements offer a blueprint for developing comprehensive and harmonized AI regulations under international trade law. The proposed AI-focused negotiations under the WTO's Joint Statement on E-commerce Initiative could further enhance global governance in this area, promoting interoperability and standardization while respecting diverse national values and interests.

In light of these findings, it is evident that the WTO, as the paramount intergovernmental trade organization, must evolve to address the challenges and harness the opportunities presented by AI in international trade. This evolution involves not only reinterpreting existing agreements but also potentially developing new frameworks or agreements specifically tailored to the unique demands of AI-driven trade. The future of global commerce in the AI era hinges on the ability of international trade law to adapt, innovate, and cooperate in this rapidly changing landscape.

APPENDIX

TABLE 1: Negotiating topics for the WTO Joint Statement on Electronic Commerce Initiative

Negotiation Issues	Sub-Issue
Cluster I: Promotion of electronic commerce	1. Facilitating e-transactions — e-trade architecture, e-signature, and e-verification, e-contracts 2. E-transmission of tariffs — e-transmission of tariff-free issues 3. Digital trade facilitation and logistics — paperless trade, e-trade administrative documents, e-transferrable records, customs administration, trade policy improvements, enhanced trade facilitation, de minimis tariff exemptions, single-window data exchange, and system interoperability, use of Technology for cargo release and customs clearance, logistics services

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Negotiation Issues	Sub-Issue
Cluster II: Openness and e-commerce issues	1. Non-discrimination and liability — non-discriminatory treatment of digital products, interactive computer services, prior authorization 2. Data flows — cross-border transmission of data by electronic means/cross-border flow of data, geographic location of computer facilities/location of financial facilities 3. Access to the Internet and data — open government information, access to the Internet, use of online platforms/competition
Cluster III: Topics of trust and electronic commerce	1. Consumer Protection — Online Consumer Protection, Non-consensual Commercial Electronic Messages 2. Personal Information Protection 3. Business Trust — Protecting the Original Code, Encryption Technology for Information and Communication Products
Cluster IV: Cross-cutting issues	1. Transparency — transparency, domestic regulations, cooperation 2. Cybersecurity — encouraging cooperation and capacity-building 3. Capacity-building and technical assistance/ cooperation among stakeholders, institutions, and international organizations 4. Cross-cutting issues/legal issues — capacity-building, legal issues
Cluster V: Telecomm-unications issues	Telecommunications — Updating WTO Basic Telecomm-unications References, Transparency
Cluster VI: Electronic Openness Issues	Market liberalization — services market liberalization, goods market liberalization

Note: Information from Leonila Guglya & Marilia Maciel, *Addressing the Digital Divide in the Joint Statement Initiative on Electronic Commerce: From Authorization Issues to Data and Source Code Provisions*, ht tps://www.iisd.org/system/files/2021-01/digital-dividee-commerce-en.pdf.

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