

INTERNATIONAL JOURNAL OF LAW
MANAGEMENT & HUMANITIES
[ISSN 2581-5369]

Volume 9 | Issue 3

2026

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Artificial Intelligence and its Impact and Challenges on International Trade Law

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ABSTRACT

Artificial Intelligence has a considerable impact on international trade law. It enables the automation of complex decision-making and technical innovation, and it can substantially improve the efficiency and efficacy of trade and related processes. Applications of Artificial Intelligence in international trade, particularly in predictive analytics and decision-support systems, have the potential to transform the field. However, the integration of Artificial Intelligence into international trade law presents substantial obstacles, including concerns about data privacy, accuracy and reliability. To balance these problems against the benefits of Artificial Intelligence, legal processes must remain fair and accurate, and international cooperation is needed to establish regulatory standards for the deployment of Artificial Intelligence in international trade. Such standards are essential to ensure that technological innovation advances the objectives of international trade while safeguarding the integrity of the legal framework. A comprehensive and efficient legal system is required to maximise the potential benefits of Artificial Intelligence while curtailing its risks. The integration of Artificial Intelligence technologies with international trade law is proposed as a critical factor in advancing free trade and global economic integration, accelerating economic connectivity and promoting a more compact global market, in alignment with the modern objectives of trade and the application of technological advancement.

Keywords: *Artificial Intelligence, International trade law, World Trade Organization, intellectual property, supply chain, data privacy.*

I. INTRODUCTION

Artificial Intelligence is bringing significant change across industries globally, and its impact on world trade is important in several respects. As nations confront the challenges of international markets, Artificial Intelligence also introduces significant opportunities to increase operational efficiency, improve market access, address warehousing and supply-chain issues, and optimise trade-finance mechanisms so that the final good can be produced cost-efficiently. This paper examines the dynamic role of Artificial Intelligence in reshaping global trade, offers

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a detailed analysis of the level at which Artificial Intelligence and related technologies influence trade and its various components, and identifies the shortcomings and opportunities posed by technological advancement such as Artificial Intelligence. What role Artificial Intelligence has in international trade was the significant question initially, together with how its full potential can be realised while addressing the legal, technical and operational challenges that accompany its benefits. In addition, this paper offers a broader understanding of the transformative effects of Artificial Intelligence on international trade, and of the various challenges it raises, including technological constraints and the reliability of the data that Artificial Intelligence provides.

II. ARTIFICIAL INTELLIGENCE AND INTERNATIONAL TRADE LAW

The advent of Artificial Intelligence is one of the most significant transformations and technological developments of the twenty-first century, influencing the structure and dynamics of global trade and its related laws. As Artificial Intelligence technologies are increasingly deployed in sectors such as manufacturing, predictive analytics and e-commerce, they are reshaping the structure of international trade, presenting dynamic opportunities and critical challenges. This transformation necessitates a critical re-evaluation of international trade law and a modernisation of existing legal frameworks to accommodate the particular complexities that have emerged with the evolution of Artificial Intelligence. Artificial Intelligence has important implications for international trade law, highlighting the critical role of international organisations in building and improving regulatory frameworks to manage Artificial Intelligence and its impact on trade dynamics.

A. Historical background of Artificial Intelligence

The term Artificial Intelligence was first used by John McCarthy in 1956 at the Dartmouth Workshop. The primary objective of Artificial Intelligence was to feed human knowledge and related data into computer programs through symbolic reasoning and logic-based programs, but this innovation was limited by a scarcity of resources. In 1958, Frank Rosenblatt introduced an artificial network that could learn from data and the commands given to it. In 1959, Arthur Samuel introduced the term machine learning, and in 1966 researchers developed an algorithm that could solve mathematical calculations. In the same year, the first chatbot was developed by Joseph Weizenbaum. In 1969, Arthur Bryson and Yu-Chi Ho developed multilayer artificial neural networks, and Japan built the intelligent humanoid robot WABOT-1. In 1973, a report titled Artificial Intelligence: A General Survey was published by James Lighthill. From 1974 to 1980, scientists and inventors faced a high shortage of funds and very limited resources. In 1980, the expert system emerged, a program that could make decisions in the manner of a

human expert. The era from 1987 to 1993 is said to be a winter era, in which scientists struggled with funds and resources. The era from 1993 to 2011 was a period of the emergence of Artificial Intelligence: in 1997, IBM's Deep Blue defeated the then world chess champion Garry Kasparov, a milestone for Artificial Intelligence;¹ in 2002, Artificial Intelligence was introduced to families in the form of a vacuum cleaner; and Artificial Intelligence entered the field of business through platforms such as Facebook² and YouTube.³ In 2011, IBM's Watson won the quiz show Jeopardy, proving that it could understand natural language. The year 2012 was significant from the point of view of Google, which launched Google Now, a program that could provide information to the user in the form of predictions. The modern era of Artificial Intelligence can be understood from 2021, when OpenAI's systems, capable of answering users on the basis of data present on the internet within a very short time, came into prominence, and various software capable of producing images based on textual prompts was developed.

The three categories of Artificial Intelligence systems identified by the World Intellectual Property Organization are expert (or knowledge-base) systems, perception systems, and natural language systems.⁴ According to Russ Pearlman, the central goals of Artificial Intelligence include reasoning, knowledge, planning, learning, natural language processing (for example, understanding and speaking languages), perception, and the ability to move and manipulate objects.⁵ In general terms, Artificial Intelligence can be interpreted as the ability of machines to perform cognitive tasks such as thinking, perceiving, learning, problem-solving and decision-making.⁶

III. INTERNATIONAL TRADE LAW AND ITS NEED

Throughout history, trade and foreign laws have been closely interconnected, frequently shaped to advance trade and its related objectives. During the third century BCE, the Han Dynasty of China exercised military authority to secure and maintain the Silk Road because of its significance for commerce and economic activity. Similarly, in 30 BCE, Rome's annexation of

¹ Facebook is a social-media and social-networking platform created by Mark Zuckerberg in 2004.

² YouTube is a video-sharing platform created by Steve Chen, Chad Hurley and Jawed Karim in 2005.

³ World Intellectual Prop. Org., WIPO WORLDWIDE SYMPOSIUM ON THE INTELLECTUAL PROPERTY ASPECTS OF ARTIFICIAL INTELLIGENCE (Mar. 25, 1991), https://www.wipo.int/edocs/pubdocs/en/wipo_pub_698.pdf (last visited Jan. 23, 2025).

⁴ Russ Pearlman, *Recognizing Artificial Intelligence (AI) as Authors and Inventors Under U.S. Intellectual Property Law*, 24 RICH. J.L. & TECH. 1 (2018), <https://jolt.richmond.edu/recognizing-artificial-intelligence-ai-as-authors-and-inventors-under-u-s-intellectual-property-law/> (last visited Jan. 23, 2025).

⁵ V.K. Ahuja, *Artificial Intelligence and Copyright: Issues and Challenges*, ILI L. REV. 85 (Winter 2020), <https://ili.ac.in/pdf/vka.pdf> (last visited Jan. 23, 2025).

⁶ General Agreement on Tariffs and Trade, Oct. 30, 1947, 61 Stat. A-11, 55 U.N.T.S. 194 (entered into force Jan. 1, 1948).

Egypt was largely driven by the imperative to secure a reliable supply of grain, underlining the strategic alignment of military action with economic interests.

A. The path from the General Agreement on Tariffs and Trade to the World Trade Organization

The General Agreement on Tariffs and Trade⁷ originates from the Bretton Woods Conference of 1944, which established the framework of the international trade and financial system for the post-Second World War period. This conference resulted in the creation of two significant institutions: the International Monetary Fund⁸ and the World Bank.⁹ In addition, the conference delegates proposed the formation of a complementary international body, the International Trade Organization,¹⁰ intended to function as the third foundational component of the international trade system.

Many countries suggested that the newly formed United Nations¹¹ draft the charter for the International Trade Organization. These negotiations concluded in the form of the Havana Charter in March 1948, but the charter never came into force because the United States did not ratify it, so the concept of the International Trade Organization may be described as stillborn. Subsequent negotiations concluded in the form of the General Agreement on Tariffs and Trade. The General Agreement on Tariffs and Trade was ratified by a sufficient number of signatory countries, including Australia and the United States, to take effect on 1 January 1948, in accordance with the Protocol of Provisional Application, while deliberations on the International Trade Organization charter were ongoing. Although the General Agreement on Tariffs and Trade persisted even after the dissolution of the International Trade Organization project, it operated without a significant institutional framework, as its negotiators had anticipated that the agreement would function under the organisational structure of the International Trade Organization.

Even though there were significant institutional limitations, the General Agreement on Tariffs and Trade acted as a de facto international organisation, facilitating multiple rounds of cross-border trade negotiations between many countries. The negotiations from 1987 to 1994

⁷ Articles of Agreement of the International Monetary Fund, July 22, 1944, 60 Stat. 1401, 2 U.N.T.S. 39 (entered into force Dec. 27, 1945).

⁸ Articles of Agreement of the International Bank for Reconstruction and Development (World Bank), July 22, 1944, 60 Stat. 1440, 2 U.N.T.S. 134 (entered into force Dec. 27, 1945).

⁹ Havana Charter for an International Trade Organization, Mar. 24, 1948, U.N. Doc. E/CONF.2/78 (never entered into force).

¹⁰ U.N. Charter, signed June 26, 1945, 59 Stat. 1031, 1 U.N.T.S. xvi (entered into force Oct. 24, 1945).

¹¹ Marrakesh Agreement Establishing the World Trade Organization, Apr. 15, 1994, 1867 U.N.T.S. 154 (entered into force Jan. 1, 1995).

concluded with the adoption of the Marrakesh Agreement, which formally established the World Trade Organization.¹² The World Trade Organization incorporates the foundational legal principles of the General Agreement on Tariffs and Trade while providing a more robust and permanent institutional framework for the implementation and further development of global trade. The World Trade Organization was established with the objective of ensuring the consistent application of, and adherence to, established international trade laws among its member states in order to smooth the conduct of trade. It serves as an institution for resolving trade-related disputes between member countries in accordance with its dispute settlement mechanism. The World Trade Organization also facilitates negotiations among member states to develop significant multilateral trade agreements aimed at liberalising global trade, and it observes and administers legally binding trade agreements that constitute the global legal mechanism for the regulation of trade among its member states.

B. World Intellectual Property Organization

The World Intellectual Property Organization is recognised as one of the oldest and most longstanding specialised international agencies within the framework of the United Nations. It was established in 1967, and its headquarters are situated in Geneva, Switzerland. It was established with the objective of encouraging creative activity and promoting the protection of intellectual property worldwide. The World Intellectual Property Organization is vested with the authority to administer 26 international treaties governing different aspects of intellectual property rights among its signatory members. Currently, it has 193 member states, and Palestine has the status of permanent observer; besides Palestine, 281 non-governmental organisations and 47 intergovernmental organisations hold observer status. India became a signatory in 1975. The World Intellectual Property Organization has several functions: it is a platform for the formulation of equitable and adaptive international intellectual property laws and regulations to address evolving global dynamics related to intellectual property rights; it facilitates mechanisms for the cross-border protection of intellectual property rights and for dispute resolution; it supports the establishment and maintenance of systems to integrate intellectual property frameworks and to facilitate the exchange of knowledge related to intellectual property; and it implements collaborative initiatives and capacity-building programmes designed to empower nations to leverage intellectual property for economic, social and cultural advancement.

¹² Convention Establishing the World Intellectual Property Organization, July 14, 1967, 21 U.S.T. 1749, 828 U.N.T.S. 3 (entered into force Apr. 26, 1970).

C. Trade-Related Aspects of Intellectual Property Rights (TRIPS)

The scope of intellectual property covers various areas, including copyright and related rights, trademarks (which incorporate service marks), geographical indications and designations of origin, industrial designs, and patents. As an analysis of the TRIPS Agreement has observed, three key points arise. First, the TRIPS Agreement requires substantially strengthened protection and enforcement of intellectual property rights in many countries, phased in over varying time periods; the strengthening of the intellectual property rights regime is expected to generate positive impacts in developing countries, including more local innovation and additional inward foreign direct investment and technology transfer, but it could also produce certain negative impacts, including higher prices for protected technologies and products and restricted abilities to achieve diffusion through product imitation or copying. Secondly, in implementing the TRIPS Agreement, developing nations should aspire to strike and sustain a balance between the needs of innovative firms and their licensees for protection from easy appropriation of their intellectual property, on the one hand, and the needs of legitimate follow-on competitors and consumers, on the other; thus, in accommodating their economic-development goals to the TRIPS requirements, developing countries should maintain an appropriate balance between incentives to innovate and the need for adequate diffusion of technical knowledge into their economies. Thirdly, the impact of the various disciplines of intellectual property rights covered in the TRIPS Agreement will differ among countries depending, *inter alia*, on the existing intellectual property rights system, the level of economic and technological development, and the mode of implementation.¹³

Three basic functions are incorporated in the TRIPS Agreement. First, it establishes the minimum standards of intellectual property protection that must be upheld by each member state; it delineates the key components of protection, including the scope of the subject matter, who is eligible for protection, the rights granted, the permissible limitations or exceptions to certain rights, and the duration for which such protection must be maintained. Secondly, the principal set of provisions relating to national law specifies procedural methods and available remedies for the enforcement of intellectual property rights within the territorial limits of the member country, and the Agreement establishes general legal principles that apply to every enforcement action concerning intellectual property rights among the member states. Lastly, the TRIPS Agreement subjects disputes between World Trade Organization members concerning

¹³ U.N. Conf. on Trade & Dev., THE TRIPS AGREEMENT AND DEVELOPING COUNTRIES, U.N. Doc. UNCTAD/ITE/1, U.N. Sales No. E.96.II.D.10 (1996), https://unctad.org/system/files/official-document/ite1_en.pdf (last visited Jan. 23, 2025).

the enforcement of obligations made under the Agreement to the dispute resolution methods established by the World Trade Organization.

The intersection of Artificial Intelligence and international law is a revolution in the field of multinational trade, such as e-commerce, where Artificial Intelligence handles customer grievances and produces results within a very short time in accordance with the customer's command. Traditional mechanisms, such as those established under the General Agreement on Tariffs and Trade, the World Trade Organization and the TRIPS Agreement, will face significant challenges as Artificial Intelligence evolves, and resolving them will require updated mechanisms unlike the traditional methods.

IV. ARTIFICIAL INTELLIGENCE AND ITS IMPLICATIONS FOR GLOBAL TRADE AND RELATED LAWS

The digital revolution in international trade, with the emergence of Artificial Intelligence, is significantly redefining the legal framework governing international trade and its related laws. It is well established that technological advancement has always added new complexities and challenges to international trade by improving efficiency in areas such as logistics and compliance monitoring, while also necessitating updates or amendments to legal frameworks to address critical challenges such as e-commerce, intellectual property rights, and the regulation of data flows between countries. The incorporation of Artificial Intelligence into trade operations necessitates a dynamic and adaptable legal framework capable of addressing the key issues raised by digital technologies, in order to uphold the principles of trade liberalisation enshrined in the General Agreement on Tariffs and Trade and subsequent World Trade Organization agreements.

International trade law continues to confront the issues posed by technological improvements; however, the bedrock concepts of the General Agreement on Tariffs and Trade and the World Trade Organization agreements remain crucial, and these fundamental principles should remain unchanged. The ongoing commitment to lowering trade barriers and fostering a multilateral international economic system remains vital. To align trade laws with the goals of achieving sustainable and inclusive growth in the current digital economy, these frameworks must change and incorporate the transformational influence of Artificial Intelligence. The future trajectory of international trade law rests on its capacity to adapt and to ensure that it not only facilitates global trade but also effectively addresses the regulatory and governance challenges posed by the evolution of technologies such as Artificial Intelligence.

A. Implications of Artificial Intelligence for international trade

The Organisation for Economic Co-operation and Development has also researched the inclusion of Artificial Intelligence in global trade and concluded that there is potential for Artificial Intelligence to enable greater supply-chain efficiency and to help with other policy objectives, such as lowering greenhouse-gas emissions in supply chains by optimising logistics operations.¹⁴ The Organisation for Economic Co-operation and Development suggested that the inclusion of Artificial Intelligence would lower both the final cost of the product and the cost of production. There are various examples where Artificial Intelligence contributes to trade through grievance-redressal mechanisms, such as the chat feature of Zomato, where a customer's issue, if it falls within certain categories, can potentially be resolved with the help of Artificial Intelligence; if the issue is not resolved, customer-care executives assist the customer. Artificial Intelligence also assists in the supply chain and in the finance sector.

B. Challenges arising from language barriers

Various challenges arising from language barriers in international trade among nations are recognised and are evolving significantly. The Organisation for Economic Co-operation and Development has determined that Artificial-Intelligence-powered machine translation significantly enhances both the quality and the efficiency of translation, which helps the smooth functioning of trade irrespective of language barriers. These technologies are capable of processing and generating very large volumes of content in a very short time and at a cost significantly lower than that of human translation, offering a practical solution to language barriers in international trade relations. Various kinds of machine-translation software or devices exist, such as statistics-based machine translation, rule-based machine translation and hybrid machine translation; these are used mainly in fields that are not limited to any specific national territory, such as trade and the corporate sector.

C. Impact of Artificial Intelligence on the supply chain

Supply chains in any national or international trade are very important for matching demand and supply. A joint report on supply chains, prepared by the International Monetary Fund, the Organisation for Economic Co-operation and Development, the United Nations Conference on Trade and Development,¹⁵ the World Bank and the World Trade Organization, indicates that the value of services delivered digitally was 3.82 trillion United States dollars in 2022, representing

¹⁴ Org. for Econ. Co-operation & Dev., *Artificial Intelligence and International Trade: Some Preliminary Implications*, OECD Trade Policy Papers No. 260 (2022), https://www.oecd.org/en/publications/artificial-intelligence-and-international-trade_13212d3e-en.html (last visited Jan. 23, 2025).

¹⁵ United Nations Conference on Trade and Development, established by G.A. Res. 1995 (XIX) (Dec. 30, 1964).

a substantial share of global service exports; this signifies that Artificial Intelligence will have a significant role in the supply-chain sector and that this sector will be majorly affected by the evolution of Artificial Intelligence and technological advancement. The sector has experienced rapid growth, surpassing the expansion of traditional goods and services exports, and digital trade creates significant opportunities for developing countries by increasing their participation in sectors such as consulting, education and finance. Artificial Intelligence algorithms and software process historical data and forward-looking information to forecast demand, smooth the functioning of inventory management, and minimise resource inefficiencies. Artificial Intelligence systems also detect irregularities and potentially disruptive activities within supply-chain transactions that may hinder the supply chain.

D. Impact of Artificial Intelligence on warehousing and logistics

In logistics and warehousing, the application of Artificial Intelligence enhances operational efficiency to address the demands of e-commerce, global parcel shipments and similar logistical work. Artificial-Intelligence-powered systems facilitate efficient inventory management, warehouse processes and transportation coordination, resulting in improved productivity with cost efficiency, accuracy, and enhanced security in handling and delivery. For instance, the Organisation for Economic Co-operation and Development¹⁶ underscores the use of smart warehouses employing technologies such as radio-frequency identification¹⁷ for the digital tagging of goods and packages.

V. ARTIFICIAL INTELLIGENCE AND INTERNATIONAL TRADE ORGANISATIONS

Artificial Intelligence technology has transformed global trade by increasing efficiency, cutting prices, and enabling the production of novel goods, technologies and services. Artificial-Intelligence-driven, self-controlled manufacturing and other processes increase production speed and precision, resulting in significant cost savings. Furthermore, the ability of Artificial Intelligence to analyse large datasets and predict market trends enables organisations to make informed decisions, thereby enhancing their competitive position in the global marketplace. Several organisations and legal frameworks at the international level govern international trade and related legislation.

¹⁶ Org. for Econ. Co-operation & Dev., *supra* note 14.

¹⁷ Radio-frequency identification (RFID) refers to a wireless system comprising two components: tags and readers.

A. Artificial Intelligence and the United Nations Conference on Trade and Development

The United Nations Conference on Trade and Development¹⁸ plays a significant role in addressing the development-oriented dimensions of Artificial Intelligence and its impact on global trade. The organisation's efforts centre on promoting the equitable distribution of the benefits arising from trade, in which Artificial Intelligence plays a significant role. The United Nations Conference on Trade and Development focuses particularly on supporting developing countries that may face challenges related to inadequate infrastructure and limited technical expertise in effectively adopting and using Artificial Intelligence technologies. It has emphasised the potential of Artificial Intelligence to resolve existing disparities in international trade. Developed nations, supported by advanced technological infrastructure, are in a better position to use Artificial-Intelligence-driven innovations, while developing countries may face significant challenges in keeping pace with technological advancement. This disparity raises the risk of concentrating economic power and further marginalising developing nations. To address these issues, the United Nations Conference on Trade and Development advocates capacity-building initiatives aimed at enabling developing countries to leverage Artificial Intelligence and other advancements for trade. These efforts include providing technical assistance, aiding digital literacy, and encouraging the integration of Artificial Intelligence technologies in key economic sectors such as agriculture, manufacturing and services. The United Nations Conference on Trade and Development underscores the importance of Artificial Intelligence policies that account for the specific challenges faced by developing nations, ensuring equitable participation in the benefits of Artificial-Intelligence-driven trade advancement. This includes ensuring that Artificial Intelligence regulations are flexible enough to accommodate different levels of technological development and that they do not create unnecessary barriers to trade for countries that are still in the early stages of Artificial Intelligence adoption.¹⁹ The inclusion of Artificial Intelligence may remove the disparity between developed and developing nations that arises from a lack of infrastructure and technological advancement.

B. Artificial Intelligence and the World Trade Organization

The World Trade Organization was established in 1995 for the purpose of smoothing trade and regulating trade-related disputes, whereas Artificial Intelligence has driven a significant revolution in trade within and across national borders. The World Trade Organization is actively

¹⁸ United Nations Conference on Trade and Development, established by G.A. Res. 1995 (XIX) (Dec. 30, 1964).

¹⁹ Tanya Malhotra, *The Impact of AI on International Trade Law: Navigating New Regulatory Landscapes*, INT'L J. LEGAL SCI. & INNOVATION (2024), <https://ijlsi.com/wp-content/uploads/The-Impact-of-AI-on-International-Trade-Law.pdf> (last visited Jan. 28, 2025).

addressing critical issues related to e-commerce and digital trade, which are significantly influenced by the evolution of Artificial Intelligence; the rapid growth of digital international trade, driven by Artificial Intelligence, has introduced complex legal challenges, including those concerning data flows and data privacy and the role of Artificial Intelligence in global trade and related transactions. To address these issues, the World Trade Organization's Joint Statement Initiative on E-commerce, launched in 2019, aims to establish international rules that ensure trade regulations remain aligned with technological advancement. Artificial Intelligence also has the potential to enhance trade facilitation and to support the implementation of the World Trade Organization's Trade Facilitation Agreement, which aims to expedite the movement, release and clearance of goods across borders. Artificial Intelligence applications can automate customs processes, improving the supply chain, promoting transparency and reducing trade costs, which leads to more cost-efficient final goods; these are among the major goals of the Trade Facilitation Agreement. India, among other nations, is leveraging Artificial Intelligence to modernise its customs operations and enhance trade facilitation. The Central Board of Indirect Taxes and Customs in India has introduced several Artificial-Intelligence-driven initiatives that increase the efficiency of customs processes, decrease clearance times and mitigate fraud.

These organisations have been given the responsibility of regulating international trade, ensuring its smooth functioning, making provisions for dispute settlement mechanisms, and bridging the gap between developed and developing nations by focusing on liberalising technological advancement, such as Artificial Intelligence, in developing nations so as to benefit them in international trade.

VI. CHALLENGES RAISED BY THE INCLUSION OF ARTIFICIAL INTELLIGENCE IN INTERNATIONAL TRADE LAW

Although Artificial Intelligence has significant potential to modernise global trade, various critical issues must be addressed and resolved if its benefits are to be realised. These challenges relate to data accuracy and reliability, the ethical and legal considerations of content generated by Artificial Intelligence, technological constraints, societal perceptions, and other trade-specific complexities. Identifying and addressing these impediments is essential for the effective and lawful integration of Artificial Intelligence into international trade practice, for the smooth functioning of trade, for making provisions related to dispute settlement, and for bridging the gap between developed and developing nations by focusing on liberalising

technological advancement, such as Artificial Intelligence, in developing nations. Some of these issues are set out below.

A. Quality and availability of data

Artificial Intelligence systems depend on a significant volume of accurate, high-quality data to function effectively. If the data is inaccurate, biased or inadequate, it can lead to erroneous and uncertain conclusions, and the existence of bias may compromise the validity of the results created by Artificial Intelligence. Access to comprehensive data is frequently constrained by legal issues such as privacy protections, proprietary rights and regulatory compliance, and these constraints can also degrade the validity of the data used by Artificial Intelligence. Such restrictions severely hamper complex and varied trading contexts. Technical difficulties may also arise from combining data from many sources, such as supply-chain records, market analysis and customer feedback. To enable Artificial Intelligence systems to give correct assessments in accordance with legal and regulatory standards as well as national laws, it is imperative to achieve continuity and reliability across numerous elements.

B. Technological difficulties

The development, deployment and upkeep of Artificial Intelligence systems require specialised knowledge and technical proficiency. The shortage of professionals in Artificial Intelligence and related fields is a major obstacle to the adoption and successful implementation of Artificial Intelligence technologies in international trade. Additionally, the implementation of Artificial Intelligence solutions frequently necessitates large financial investment in infrastructure, which presents significant challenges for developing countries. These costs may be prohibitive, especially for small and medium-sized enterprises, owing to a lack of financial resources, and many countries rely on legacy systems that are incompatible with modern Artificial Intelligence. In order to maintain operational efficiency and compliance with existing standards, as well as to benefit trade and related processes, integrating Artificial Intelligence with such systems entails significant technical obstacles and cost burdens, frequently requiring revisions, upgrades or total system replacement.

C. Ethical and regulatory considerations

Artificial Intelligence algorithms can inadvertently, and occasionally deliberately, reinforce biases found in training data, resulting in unfair outcomes; this raises ethical concerns regarding transparency, accountability and fairness in Artificial Intelligence decision-making. Furthermore, as Artificial Intelligence systems frequently handle sensitive data, data security and privacy are of utmost importance, and protecting against cyberattacks and preventing data

misuse are critical challenges that require strong, effective solutions. Additionally, navigating the complex regulations surrounding Artificial Intelligence and data usage can be difficult, especially since different countries have their own standards and regulations, which makes it hard to implement a consistent Artificial Intelligence strategy across borders. Lastly, determining liability when Artificial Intelligence systems make errors or cause harm is another complicated issue; clear legal frameworks and guidelines are needed to ensure accountability and build trust.²⁰

Many challenges arise from technological advancement. Artificial Intelligence benefits international trade in a variety of ways, including supply-chain and warehouse management as well as e-commerce, where it becomes cost-effective and efficient in work among nations. Artificial Intelligence also assists with language barriers, where it achieves higher accuracy in translation, facilitating international trade and related laws.

VII. CONCLUSION

The integration of Artificial Intelligence into international trade presents both enormous benefits and challenges, necessitating the development of a robust legal framework for international trade law. Existing legal frameworks must change to handle new problems, including liability, intellectual property rights and the emergence of new trade obstacles, as Artificial Intelligence continues to transform economies and sectors. International bodies such as the World Trade Organization, the United Nations Conference on Trade and Development and the World Intellectual Property Organization play a vital role in facilitating this transition, smoothing trade and regulating Artificial Intelligence and its related issues, harmonising regulations and ensuring that the benefits of Artificial Intelligence are equitably distributed between developed and developing nations, so that no large gap remains between them. India, with its developing technological capabilities and strategic emphasis on Artificial Intelligence, is positioned to be an important player in this global change. India is navigating the crucial regulatory landscape while defending its national interests by using Artificial Intelligence for economic growth, modernising its intellectual property laws and promoting data privacy. International trade involves cross-border transactions in which a variety of difficulties, including language barriers, may arise, as well as advantages at different levels of trade, such as supply-chain management, e-commerce and inventory management. The legal framework should be designed to address all possible challenges and to incorporate all aspects of technological advancement.

²⁰ Ozcan Ozturk, *The Impact of AI on International Trade: Opportunities and Challenges*, 12 *ECONOMIES* 298 (2024), <https://www.mdpi.com/2227-7099/12/11/298> (last visited Jan. 26, 2025).