

India in Digital Trade Ecosystem: Opportunities and Future policy Direction

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Abstract—The relationship between digitalisation and globalisation is intricate, requiring a firm-level analysis to comprehend how technologies influence value chains and supplier-customer dynamics within specific regional contexts. Multinational corporations (MNCs) are pivotal in transferring digital technologies globally through foreign direct investment (FDI), which can lead to knowledge spillovers enhancing productivity and exports. This paper explores the impact of digitalization accelerate the position of global trade and customs and highlighting India's Position in digital globalization both opportunities and future outlook. It addresses how rapid technological advancements enhance efficiency and global connectivity while introducing complexities like cybersecurity risks and regulatory compliance issues.

Key Words— Global Trade, Digital transformation, Sustainability, Industrial Revolution, Digital Economy

I. INTRODUCTION

Over the past few years, policymakers and researchers have focused on the connection between international trade and digitalization. The global digital transformation, driven by advances in information and communication technology (ICT), has upended economies and societies, creating new pathways for growth, innovation, and inclusion. However, it also raises challenges, especially for developing economies with low internet infrastructure. To enable these economies to fully engage in digital trade and bridge the digital divide, domestic and international efforts at both national and international levels are needed, including financial actions and technical support to strengthen connectivity and readiness [1]. The impact of digitalization on the future of international trade cannot be stressed enough. It has scale, speed, and efficiency. Businesses can now engage a worldwide audience via digital platforms, allowing for quick

value generation and the development of new trade ecosystems [2]. While digital trade comprises a wide range of activities, including digitally-enabled goods and services transactions as well as cross-border services such as ICT and banking, there is still no commonly agreed definition. The OECD defines digital trade as transactions in goods and services that are provided digitally or physically, including consumers, businesses, and governments. These improvements have enabled firms, particularly small- and medium-sized enterprises (SMEs) in developing countries, to access global markets, resulting in new potential for economic growth and innovation [3]. However, the advantages of digitalization in international trade are unevenly distributed. While many countries benefit from digital trade, others have challenges due to a lack of digital infrastructure. According to research, economies with inadequate digital infrastructure are less able to reap the benefits of digital trade, resulting in discrepancies between developed and developing countries [4].

History of World trade

Trade has evolved through various Eras:

- Trade (Pre-1500) – Ancient & Medieval. Concerned with long-distance trade of products such as spices and textiles by means of such routes as the Silk Road and trans-Saharan routes.
- Mercantilism & Colonialism (1500s-1800s). European countries sought to amass wealth through trade surpluses and colonies, and control the ocean routes.
- Industrial Revolution & Globalisation (1800s-1914). The arrival of inventions including steamships and railways led to a lowering of transport costs and expansion

of trade, but this was later disrupted by global conflicts.

- Post-War Multilateralism (1945-1994). GATT was set up as one of the institutions established at the Bretton Woods Conference to lower tariffs by way of negotiations.
- WTO Era (1995-Present). The WTO replaced GATT in 1995, covering goods, services, and intellectual property rights, so trade volume grew by roughly 43 times over 1950. New trade drivers such as technology (containerization, digital communications), policies oriented towards free trade (NAFTA/USMCA, RCEP), financial ties (global supply chains), and payments (digital payments) are contributing towards globalization of trade. As of 2024, the WTO is integral to the regulation of international trade, though it is not immune to problems such as regional disputes and the implications of digital transformation.

Trade and globalization had its antecedent conditions before, with the onset of the First World War and following the decline of the 1930s [5]. Most of the recent studies have paid attention to the data on bilateral trade with a gravity model approach and market integration using price data [6]. The wind of change: Maritime technology, trade, and economic development. [7]. But trends in total trade have yet to be given comparable attention, based purely on historical sources from the League of Nations for the interwar years and initial estimates by Maddison and Lewis for the pre-World War One period [8]. Such sources contain no recent data on particular countries and new national account series, they are all basically data from advanced nations. Therefore, neither gravity models nor market integration estimates are sufficient to substitute total trade series with the difficulties given the incompleteness and inaccuracy characterizing bilateral trade data [9].

II. LITERATURE REVIEW

Dachs & Wolfmayr (2025) analyse how technologies for digital production affect export performance for a sample of firms in Germany, Austria, Switzerland, and Croatia using the European Manufacturing Survey 2018. They

distinguish two channels, the productivity channel which increases efficiency and international competitiveness and the service-innovation channel, associated with digital servitization and product upgrading[10].

Anon Higon et al. (2025) examine the impact of digitalization on participation in Global Value Chains (GVC) using a panel of Spanish manufacturing firms from 2006 to 2018. Their findings suggest an indirect channel where digitalization enhances productivity, subsequently promoting GVC involvement, as opposed to a direct channel that integrates trade. Automation technologies and ICTs contribute to the productivity-based increase in GVC participation, with ICTs notably increasing exports and automation technologies boosting imports from various countries. Their results align with the findings of Dachs and Wolfmayr (2025), indicating that non-automation digital technologies are more closely associated with service-oriented internationalization [11].

Two studies utilize a Spanish dataset to analyze the international impact of digitalization. Álvarez, Marin & Quirós (2024) focus on foreign direct investment (FDI) and e-commerce, finding that digitalization reduces market entry costs, positively impacting export volume, number of foreign subsidiaries, and control over those subsidiaries. The results reveal that e-commerce boosts exports and control while decreasing subsidiaries due to domestic production concentration [12]. In a related study, Calatayud and Rochina-Barrachina (2025) show that robotization encourages reshoring in manufacturing firms, enhancing domestic production but not increasing employment because of automation [13]. Conversely, Agostino et al. (2025) find that participation in global value chains (GVCs) facilitates digital technology adoption, particularly for micro and small firms engaged in relational GVCs, as they lower perceived risks and costs associated with digital investments through trust and support from larger partners [14].

Digitalization accelerate the process of International trade

- Digital technologies have become one of the key trends of global trade, with cloud computing, data analysis, artificial intelligence and the Internet of Things all

helping to boost its pace. The development of digital trade has ranked first for China as a whole, and over the last decade it has seen remarkable growth and globalization. Digital trade means everything you do online and includes online trade, electronic payments, cross-border e-commerce, etc.

- It is characterized by the use of digital technology to enable rapid international trade transactions. China had an export and import value of \$372.71 billion worth of digitally deliverable services (3.4% increase from the previous year), cross-border e-commerce had risen to 2.11 trillion yuan (9.8%) in 2022 China Digital Trade Development Report. The expansion of the trend implies tremendous digital trading potential that drives enterprises to adopt digital transformation (like e-commerce) and enhance efficiency and reduce costs. The digitization of trade, involving the application of digital technologies to trade-related activities, is redefining traditional trade paradigms [15]. It has to do not just with digital trade, but also digitizes the trade processes, the supply chain management and the finance. Governments are moving to recognize the importance of growing trade digitization through policy development (like the United States and Japan). Moreover, agencies like the WTO and ITC are promoting policies and standards for digitalizing trade [16]. Trade digitization has caused substantial alterations to market environment because of the development of the Internet and mobile communication technologies. Such change allows consumers and enterprises to participate in cross-border transactions and partnerships easily. The emergence of digital trade platforms has further increased the number of traders in the international arena. More recently, consumer demand for easier and more convenient trading means has driven trade digitization, and new platforms addressing these needs are helping develop it even more. In light of the speedy development of IT and the growing globalization, the technology of trade and business internationalization are speeding up and expanding. Enterprise

internationalization refers to firms traveling abroad, seeking to maximize their share worldwide and utilize other countries' resources. This is also key for gaining competitive advantage in a global market. Trade digitization has a positive and synergistic effect on enterprise internationalization, where trade digitization leads to the trading platform efficiency and the increased international expansion, and with the expansion of the internationalization, it accelerates the growth of the digitalization of industrial system [17]. Digital economy is one area of significant progress in global trade. Changing the world economy, digital technology is fundamentally transforming international economic rules, supply chains and business models which leads organizations to invest in innovation for a competitive advantage. Improvements in the digitization of trade open the avenues for the use of e-commerce, efficient logistics and access to digital trade and global markets and are beneficial to the firms. This shift empowers small and medium-sized businesses and enhances the globalization through higher exports and less impediments. Moreover, digital technology has an impact on firms' internationalization as it increases the access to resources for them and increases the integration of their activities while the corporate governance is being influenced [18].

- Trade digitization in trade substantially accelerates enterprise internationalization: it reduces information asymmetry and transaction costs. Online financial tools, online payment processing, e-commerce platforms, digitized logistics, and logistics management are all such technologies to make trade as easy and efficient as possible, as well as automated and least dependent on paper (or even manual) data. This makes traditional trade faster and cheaper, which means businesses can now be in touch with their suppliers and customers and in turn facilitate exchanges more quickly. Reducing trade costs (an important barrier to internationalization) enables enterprises to explore new markets

and connect with new suppliers and international customers. Therefore the digitization of trade not only speeds up the entry and expansion into the new market but also allows the business to gain the market share and scale of the international operations [19]. There is the possibility that global operations due to trade digitization will accelerate businesses' global expansion owing to less transaction cost to a company. Inward connectivity covers those social networks through which individuals or organizations may share facts and ideas and also promote cooperation. It allows the world's multinationals to develop international links in developing countries by learning from foreign multinationals in these areas to improve their international endeavours. A strong sense of internal connectivity reinforces the possibilities for communication with the global partners and enables you access to international sources and resources with regards to international markets and technologies for the adaptation to the needs of internationalization. This sort of connectivity enhances the exchange of ideas, understanding of global problems and opportunities and provides valuable information needed to develop in-depth local internationalisation plans. This type of communication ensures high degree of international cooperation is maintained and knowledge sharing takes place between enterprises to help to meet the challenges and opportunities of the globalized environment. In addition, it promotes cooperation between partners and builds trust, which promotes joint productivity and product marketing [20].

- There are some challenges that the Technology Revolutionized International Trade have transformed international trade (e.g. Trade – efficiency and markets are improved; but Technology also brings many new complexity. Primary obstacles are: 1) A strong investment in a secure digital infrastructure, plus 2) The increase in complexity of the global supply chain and the hurdles of complying with diverse regulations and cultural practices.

Furthermore, the surge of e-commerce is bringing difficulties in the management of data since e-commerce has caused data needs to conform to stricter data privacy laws, as well as adopt new data technologies[21].

- More developed countries with rich digital infrastructure and policies, nations engage in increased levels of international trade. The lower transaction costs and more efficient trade logistics created by digital technology are of great assistance to SMEs. Yet, developing countries have more difficulty building a strong economic base that is often limited by internet access and low digital skills, which act as barriers to trade. Effective e-commerce and cybersecurity policies are pivotal for reducing the uncertainty with which firms operate while promoting trade. Other new technologies such as blockchain and AI can facilitate trade faster, but with risks to user privacy. That said, the literature also notes the importance of investing in digital infrastructure, skills, well-defined digital policies, and global support of collaboration from policymakers. Economic development, the quality of institutions, and human capital conditions also drive the relationship between digital infrastructure and trade, so a holistic approach to foster inclusive digital economy is necessary for all these aspects [22].

India's Position in Digital Globalization

India has undergone remarkable digital transformation in the last ten years. It is important for policymakers, as well as the private sector, to learn to track and understand the role of the digital economy in the country's economic growth, employment and sustainable-development initiatives. India is the third-largest country in the world, in terms of overall digitalization, according to the State of India's Digital Economy Report 2025 [23]. while it is the 12th most developed country in terms of user digitalization rates among G20 countries. Anticipations are that India's digital economy could grow almost twice the rate of its overall economy, and could amount to around one-fifth of national income through 2029-30. In less

than six years, this growth could see the digital economy overtake agriculture and manufacturing in its output. At first, it will mostly come from digital intermediaries and platforms, with a wave of digital penetration in later years occurring across much of the economy. As a result, this process may decrease the share of digitally enabling ICT sectors in the overall digital economy. Digital economy has been a significant contributor to economic growth with a share of 11.74 % of GDP in 2022-23 (INR 31.64 lakh crore or USD 402 billion) for the Digital Economy of India. It provided employment opportunities for 14.67 million people (2.55 percent of the employment force) and became the most productive sector by nearly five times compared to its peers. Among the important digital enabling sectors, ICT services and electronic component manufacturing contributed 7.83 percent to the Gross Value Added (GVA) and digital platforms made up another 2 percent. GVA rose about 2 percent in traditional areas, such as banking, financial services, insurance (BFSI), retail and education, also underscoring the benefits of digital transformation across the economy. By 2029-30, estimates suggest the digital economy will contribute 20% of GVA, greater than agriculture and manufacturing. Key drivers of this growth are the acceleration of AI adoption, cloud service development and the growth of global capability centers (GCCs) – with India home to around 55% of these centers set up by multinational companies for services and support of various types (R&D and IT support).

➤ Digital Progress

The result of primary surveys and stakeholder debates brings out a fair number of facts about which industry sectors are already adopting digitalization technologies. Some industries contribute to revenue more than others. Although the speed at which company goes digital means that retail sales are moving to Internet format much quicker than wholesale ones. Firms now use digital tactics to engage their customers and expand their businesses, and tools like chatbots and AI applications are used from the bottom up. More than 95% of all banking transactions in BFSI are digitally enabled, but the revenue-generating activities (loans, investments, etc.) to provide products and services remain offline because banking services are a lower-digitalization sector overall. Retail is moving towards omni-channel businesses where e-commerce businesses go to physical stores in

addition to AI chatbots and intelligent inventory management services to increase productivity. Educational institutions have begun adopting offline, online, and hybrid models of learning but many have increasingly emphasized hybrid approaches. Hospitality and logistics are combining AI technologies and metaverse tools: larger companies are digitizing entirely while smaller organizations lag behind [24].

➤ The Future Outlook

By 2030, India's digital economy will contribute to about one-fifth of the country's economic output and will outpace the performance of traditional industries. Industries that enable digitization have seen growth at 17.3% over the past decade, compared to 11.8% for the economy at large. Fast growth also is anticipated within digital platforms themselves at an estimated 30% growth rate in coming years. The segment had a total of around 14.67 million employees, or about 2.55% of the Indian workforce, in employment in 2022-23 (58%+) and a high share (58%+) of these worked in the digitally enablement sector. Initially mainly male-oriented, digital technology is leading to more female workers and jobs for women's work, which was previously largely a struggle with digital platforms and was an obstacle in sectors with previously mobility or safety issues. A burgeoning digital economy of India is an important lever for economic development and job creation that contributes directly to broader representation of women in the labor market in different sectors. The sudden ascent of these platforms is a sign of the evolutionary progress that will redefine the way we work in India [25].

Opportunities for India in Digital Globalization

Despite a number of challenges, various academic studies suggest there are considerable opportunities in India:

- Exports of e-commerce and digital services. UNCTAD (2022) has shown that developing countries could increase digital trade by 20–30% by enhancing connectivity and digital literacy. For India, the focus is growing current IT services even further into areas at a more mature scale, such as cloud computing and AI-enabled products [26].

- Startups and Innovation Ecosystems: India emerged as the world's third largest startup ecosystem by number of unicorns in 2023, with more than 100 unicorns (Startup India, 2023)
- Digital Public Infrastructure: The Aadhaar-India Stack model is being looked at as an example of how government-led digital infrastructure can be used to make India inclusive. This places India in a particularly favorable position to provide a replicable model to other such newer economies.
- Digitalization that is Green and Inclusive: In order to address the increasing challenges posed by sustainable climate change, studies emphasize that digitalisation must coexist with environmental and social objectives. Adopting green digital technologies—such as solar energy data platforms and smart grids—could make India a leader in sustainable digital globalization (IEA, 2022).

III. POLICY RECOMMENDATIONS

Our actions are also shaped by the above identified opportunities and challenges and the subsequent policy recommendations. India's future direction consists of:

1. Boost Digital Infrastructure and Inclusion

- Rural Connectivity: Rapidly deploy BharatNet and 5G to make high-speed internet accessible to all the citizens.
- Affordable Devices: Access to affordable smartphones and laptops for those in rural areas through subsidy or financing.
- Digital Literacy Programs: Initiatives like PMGDISHA which promote digital literacy programmes.

2. Enhance Cyber security and Data Protection

- Legislate Digital Personal Data Protection (2023): With a clear implementation model in place under this act, we shall have clearly defined enforcement measures.
- Establish a National Cyber security Framework: Include real-time threat monitoring and encourage global cooperation.
- Support Domestic Cybersecurity Startups: Fund and incentivize local cybersecurity startups to move away from reliance on foreign technologies.

3. Develop a Stable and Transparent Regulatory Environment

- Avoid Abrupt Policy Changes: Maintain stable regulations of e-commerce, fintech, and FDI to discourage rapid changes.
- Create a Digital Policy Council: Establish a council of government officials, industry, and academia to develop policies that provide long-term solutions.
- Engage in Global Digital Trade Negotiations: Keep India involved in global dialogue, but also protect its domestic interests.

4. Invest in Research, Innovation, and Intellectual Property

- Increase R&D Expenditure: Target a research rate of two percent of GDP (0.7 percent today).
- Establish Digital Innovation Clusters: Connect universities, startups, and large corporations through these hubs.
- Enhance IPR Enforcement: Strengthen enforceability of intellectual property rights to shield domestic innovators and foreign collaborators.

5. Cultivate Next-Generation Human Capital for the Digital Era

- Revise Higher Education Curricula: Develop such subjects as AI ethics, blockchain regulation, e-commerce law, and digital trade into your education curriculum.
- Collaborate with Industry for Vocational Training: Establish partnership with industry to increase programming opportunities in coding, data analysis, and cybersecurity.
- Promote Lifelong Learning Initiatives: Support mid-career professionals in acquiring new skills necessary for employment within the digital economy.

6. Promote Sustainability in Digital Growth

- Advocate for Green Data Centers: Move towards renewable energy sources in data centers.
- Enforce Eco-Friendly Practices in E-Commerce Packaging: Implement sustainability-friendly packaging solutions throughout logistics operations.
- Launch a Digital Sustainability Index: This index will help track the environmental impact of India's digital economy.

7. Support Domestic Champions and Encourage Focused Competition

- Provide Tax Incentives for Indian Startups: Grants for companies in such industries as semiconductors, AI, and cloud computing.

- Implement Antitrust Regulations Against Monopolies: Create laws to protect the market from monopolies.
 - Foster Public-Private Partnerships: Partner on scalable digital platform developments (e.g., ONDC as a viable choice for the internet as the alternative to Amazon).
8. Enhance Global Engagement
- Position India as a Thought Leader: Organise for leading positions that cover issues in digital governance in places like G20, WTO, and OECD.
 - Expand Bilateral Collaboration on Digital Economy: Formalize stronger collaborations amongst European Union, Japan, and ASEAN countries regarding digital economy questions.
 - Participate Actively in Setting Global Standards: Become involved in establishing global standards concerning AI technology standards, cybersecurity measures, and cross-border data transfer protocols.

IV. CONCLUSION

Over recent years, the relationship between international trade and digitalization has gained attention from policymakers and researchers. The digital transformation, propelled by advances in ICT, fosters new economic opportunities but also poses challenges, especially for developing nations with limited internet infrastructure. Engagement in digital trade necessitates comprehensive domestic and international efforts to enhance connectivity. Digitalization enhances trade efficiency and access, particularly benefiting SMEs in developing countries by opening global market avenues. However, disparities exist, as those with inadequate digital infrastructure struggle to reap benefits, leading to inequalities between developed and developing nations. The evolution of trade has progressed through distinct historical periods, highlighting the shifts in global trade dynamics. Recent studies examine the effects of digital production technologies on export performance and the correlation between digitalization and Global Value Chain participation. Digital technologies, particularly in China, have revolutionized trade practices, enabling faster transactions and broader engagement in e-commerce and service exports. This digitization process is reshaping traditional trade models and driving governments and institutions to adapt policies that support digital trade development.

REFERENCES

- [1] Chakraborty, D., & Dey, O. (2024). Introduction: World Trade Organization, Trade and Opportunities. In *Influence of WTO and Global Dynamics on Trade Flows: A Machine-Generated Literature Overview* (pp. 1-181). Singapore: Springer Nature Singapore.
- [2] González, J. L., & Ferencz, J. (2018). Digital trade and market openness. *OECD trade policy papers*.
- [3] Aggarwal, V., & Karwasra, N. (2025). Artificial intelligence v/s human intelligence: a relationship between digitalization and international trade. *Future Business Journal*, 11(1), 16.
- [4] Ahmedov, I. (2020). The impact of digital economy on international trade. *European Journal of Business and Management Research*, 5(4).
- [5] Meissner, C. M. (2014). Growth from globalization? A view from the very long run. In *Handbook of economic growth* (Vol. 2, pp. 1033-1069). Elsevier.
- [6] Federico, G., & Tena-Junguito, A. (2019). World trade, 1800-1938: a new synthesis. *Revista de historia economica-Journal of Iberian and latin american economic history*, 37(1), 9-41.
- [7] Federico, G., & Tena-Junguito, A. (2019). World trade, 1800-1938: a new synthesis. *Revista de historia economica-Journal of Iberian and latin american economic history*, 37(1), 9-41.
- [8] Maddison, A. (1962). Growth and fluctuation in the world economy, 1870-1960. *PSL Quarterly Review*, 15(61).
- [9] Federico, G., & Tena, A. (1991). On the accuracy of foreign trade statistics (1909–1935): Morgenstern revisited. *Explorations in Economic History*, 28(3), 259-273
- [10] Dachs, B., & Wolfmayr, A. (2026). Digital production technologies and exports. *Industry and Innovation*, 33(1), 13-33.
- [11] Añón Higón, D., Mániz, J. A., Sanchis, A., & Sanchis, J. A. (2026). Digitalisation and global value chain participation: evidence from Spanish manufacturing firms. *Industry and Innovation*, 33(1), 34-69.
- [12] Álvarez, I., Marin, R., & Quirós, C. (2026). The dynamics of digital technologies in the

- strategies of MNEs. *Industry and Innovation*, 33(1), 70-95.
- [13] Calatayud, C., & Rochina-Barrachina, M. E. (2026). Robots and firm reshoring. *Industry and Innovation*, 33(1), 96-115.
- [14] Agostino, M., Brancati, E., Giunta, A., Scalera, D., & Trivieri, F. (2026). Digital technologies and global value chains: evidence from the Italian industry. *Industry and Innovation*, 33(1), 116-141.
- [15] Wysokińska, Z. (2021). A review of the impact of the digital transformation on the global and European economy. *Comparative Economic Research. Central and Eastern Europe*, 24(3), 75-92.
- [16] Lu, G., Miao, Y., Liu, S., & Wang, J. (2025). Acceleration or deceleration? The impact of trade digitization on the speed of enterprise internationalization. *Finance Research Letters*, 72, 106558].
- [17] Fang, F. (2023). Corporate innovation and internationalization: Evidence from China. *Finance Research Letters*, 56, 104087.
- [18] Cheng, W., Li, C., & Zhao, T. (2024). The stages of enterprise digital transformation and its impact on internal control: Evidence from China. *International Review of Financial Analysis*, 92, 103079.
- [19] Ma, S. Z., & Chai, Y. X. (2023). Digital trade cost and its decomposition: connotation and extension——on the saving path of transaction cost in the era of digital economy. *Reformation and Strategy*, 39(5), 18-33.
- [20] Zhou, C., & Liao, J. (2024). Home country digital finance development and post-entry internationalization speed of emerging market SMEs: Empirical evidence from China. *International review of financial analysis*, 91, 103016.
- [21] Kshetri, N. (2018). 1 Blockchain's roles in meeting key supply chain management objectives. *International Journal of information management*, 39, 80-89.
- [22] Mirzaye, S., & Mohiuddin, M. (2025). Digital transformation in international trade: Opportunities, challenges, and policy implications. *Journal of Risk and Financial Management*, 18(8), 421.
- [23] Mishra, D., Reddy, A., Gupta, S., & Bharti, J. (2025). *State of India's Digital Economy: A Subnational Perspective, 2025* (No. 25-r-20). Indian Council for Research on International Economic Relations (ICRIER), New Delhi, India.
- [24] Mishra, D., Kedia, M., Reddy, A., Fernandez, C., Ramnath, K., & Vanguri, S. (2025). *Estimation and Measurement of India's Digital Economy* (No. 25-r-03). Indian Council for Research on International Economic Relations (ICRIER), New Delhi, India.
- [25] Peltola, A., Barnat, N., Chernova, E., Cristallo, D., Hoffmeister, O., & MacFeely, S. (2022). The role of international organizations in statistical standards setting and outreach: An overview of the UNCTAD contribution. *Statistical Journal of the IAOS*, 38(2), 501-509.
- [26] Citaristi, I. (2022). International energy agency—iea. In *The Europa directory of international organizations 2022* (pp. 701-702). Routledge