HSR (LONDON),
HOUGHTON STREET REVIEW JOURNAL
ISSN: 2058-5519|Impact factor-15.9
http://houghtonstreetreview.com/index.php/hsr

ARTIFICIAL INTELLIGENCE AND THE STRUCTURE OF GLOBAL TRADE: FROM EFFICIENCY REVOLUTION TO PARADIGM RECONSTRUCTION

Bakhora Muyassarova
Student, Faculty of Management Tashkent state
University of Economics
Tashkent, Uzbekistan
bmuyassarova@gmail.com
doi:https://doi.org/10.5281/zenodo.23878513

Abstract: Artificial intelligence (AI) is generating systemic changes in international trade that are deepening over time. Drawing on recent reports from the WTO, UNCTAD and OECD as well as relevant academic research, this paper analyzes the impact of AI on the structure of global trade at three levels: efficiency gains through reduced trade costs and expanded participation of small and medium-sized enterprises; transformation of trade composition through the expansion of cross-border trade in services enabled by generative AI; and the development divide arising from the uneven distribution of digital infrastructure and computing capacity. The study finds that AI's potential to stimulate trade is substantial — global trade could grow by 34–37 percent by 2040 — yet the distribution of these gains depends heavily on countries' digital readiness and policy choices. The paper also discusses emerging challenges facing trade rules, including the classification of AI goods and services, cross-border data flows and intellectual property.

Keywords: artificial intelligence; global trade structure; trade costs; digital divide; trade in services; trade rules

Introduction

Artificial intelligence (AI) has been evolving over recent years from a general-purpose technology into core infrastructure of the global economy. With the release of ChatGPT in 2022, the capabilities of generative AI expanded rapidly, covering fields ranging from text generation, coding and data analysis to the provision of professional services. This wave is also exerting a profound impact on international trade: AI is not only a tool for enhancing efficiency in logistics and customs clearance, but is itself becoming a good and service traded across borders. In 2025 the World Trade Organization (WTO)

published its World Trade Report, which for the first time systematically examined the relationship between AI and international trade and, based on scenarios of AI technology diffusion, estimated that by 2040 global trade volumes could increase by 34 to 37 percent relative to a scenario without AI progress.[1] This so-called "40 by 40" effect is driven by three forces acting together: the reduction in trade costs brought about by AI efficiency gains, the rapid growth of tradeable AI services, and significant productivity gains in sectors most deeply integrated into international trade. However,

[1] WTO, World Trade Report 2025: Making Trade and AI Work Together to the Benefit of All (Geneva: WTO, 2025).

HSR (LONDON),
HOUGHTON STREET REVIEW JOURNAL
ISSN: 2058-5519|Impact factor-15.9
http://houghtonstreetreview.com/index.php/hsr

behind the encouraging prospects lie serious structural problems. A report by the United Nations Conference on Trade and Development (UNCTAD) shows that AI research and development and infrastructure construction are highly concentrated: in 2022 only 100 companies financed 40 percent of global AI R&D expenditure, and none of them outside China came from a developing country; the United States holds more than half of the world's computing capacity and one third of the world's best supercomputers . [2]This imbalance means that AI may widen the digital divide between developed and developing countries. This paper seeks to answer the following questions: through what channels is AI transforming the structure of global trade? How are the benefits and risks of these changes distributed? What problems does the existing system of trade rules face? Drawing on official reports from the WTO, UNCTAD and OECD and on relevant academic research, the paper analyzes three dimensions — trade costs, trade composition and the development divide and concludes with policy perspectives.

Literature Review

Academic research on AI's impact on international trade has grown rapidly in recent years, but owing to limited empirical data the existing literature relies mainly on qualitative analysis and scenario simulation. The trade cost and efficiency channel. Research in this strand identifies the core economic significance of AI as lying in reducing the costs of forecasting and data processing. AI applications in data search, language translation, document processing and compliance verification can significantly reduce the "trade frictions" that constitute an important part of traditional trade costs. An OECD report highlights AI applications in customs: risk segmentation, anomaly detection, automated document verification and data matching can be performed more efficiently with AI, but this requires that trade documents and processes be fully digitized and interoperable .[3] The trade composition and services trade channel. While traditional research focused mainly on trade in goods, the emergence of generative AI has redrawn the boundary of what in services trade can be "traded". Mao Risheng argues that generative AI, by codifying knowledge, decomposing tasks and verifying quality, significantly enhances the cross-border deliverability of professional services such as legal, financial, medical and educational services, promoting a paradigm shift in trade in services (Mao, 2026). WTO data show that trade in digitally delivered services is the area most rapidly stimulated by AI, with growth of 42 percent expected by 2040.[4] The trade rules and institutional response channel. Kim, Kim and Jeong (2024) propose discussing within the WTO such issues as the classification of AI as a good or a service, the establishment of "Mode 5", subsidies and intellectual property, and highlight the lag of current trade rules in responding to AI development (Kim et al., 2024). Research in this strand is still at an early stage and is largely limited to ideconclusions on systematic policy design. Overall, the

[2] UNCTAD, Technology and Innovation Report 2025: Inclusive Artificial Intelligence for Development (Geneva: UNCTAD, 2025).

[3] OECD, Strengthening Supply Chains through Efficiency, Resilience, AI and Environmental Performance (Paris: OECD, 2026).

[4] Mao Risheng, "Artificial Intelligence and International Trade: From Efficiency Revolution to Paradigm Reconstruction", International Trade, 2026(4)

HSR (LONDON),
HOUGHTON STREET REVIEW JOURNAL
ISSN: 2058-5519|Impact factor-15.9
http://houghtonstreetreview.com/index.php/hsr

existing literature confirms AI's potential to enhance trade efficiency, but research on distributional effects and institutional adaptation remains insufficient. This paper attempts to fill this gap.

Results and Analysis

Table 1: Contribution of AI to Global Trade Growth (2023–2026)

Yil	Growth of trade in AI-related goods	Share of goods in world merchandise trade	Key note
2023	-	13%	Starting level
2024	+16%	14%	Rising demand for chips, servers and data centre equipment
2025	+31%	17%	AI goods accounted for nearly half of world trade growth
2026(I yarim yil	+67%	14,8%	Growth rate Accelerated sharply

The table shows that trade in AI-related goods has been growing considerably faster than overall world trade since 2023. In 2025, AI goods accounted for almost half of the growth in world merchandise trade, confirming the central position of AI infrastructure in the structure of global trade. However, whether the growth rate remains stable in the second half of 2026 depends on investment flows.

Table 2: Impact of AI on Global Trade and GDP by 2040 (WTO projection)

Indicator	Projected growth	Note
Global trade volume	34-37%	Depending on scenarios of AI technology diffusion
Trade in digitally delivered services	2%	The fastest-growig segment
Global GDP	12-13%	Driver by efficiency gains and expansion of services trade
Trade of high-income countries	35-36%	Due to technologicl leadership
Trade of low-end middle-	24-36%	Wide variation depending on policy

HSR (LONDON),
HOUGHTON STREET REVIEW JOURNAL
ISSN: 2058-5519|Impact factor-15.9
http://houghtonstreetreview.com/index.php/hsr

income countries		and infrastructure gaps

The WTO projection reveals the two-sided nature of AI's impact on trade. On the one hand, global trade could grow by almost 37 percent by 2040 — a substantial stimulus. On the other hand, the gap between developed and developing countries persists: high-income countries may achieve growth of 35–36 percent, while low- and middle-income countries may remain at around 24–30 percent in the absence of policy intervention. This directly supports the "development divide" section of the paper. AI's impact on trade costs manifests at two levels. First, at the level of operations within the border, AI can perform automated classification, risk assessment and document verification in customs clearance. The OECD cites the experience of South Korea: under a fully digitized trade ecosystem, AI tools are applied in an integrated manner at customs, performing functions such as risk profiling, X-ray analysis, HS code prediction and document matching, thereby improving the efficiency and predictability of customs clearance (OECD, 2026). Second, at the level of market access, AI can reduce the barriers to international trade for small and medium-sized enterprises in areas such as translation, customer service and compliance verification. The WTO report notes that AI can "widen trade opportunities and reduce trade costs", but the ability of firms to use digital tools is also an important factor in exploiting these opportunities).[5] However, efficiency gains do not occur automatically. The OECD report sets out an explicit condition: to use AI, trade processes must be sufficiently digitized, documents converted into machine-readable formats, data standardized and interoperability between systems ensured; without this foundation, AI cannot automate classification, match documents or perform predictive risk analysis.[6] This means that developing countries with weak digital infrastructure may face difficulties in benefiting from these efficiency gains, and the relative gap in trade costs may even widen. AI is exerting a two-way influence on the composition of global trade. On the one hand, trade in AI goods is growing rapidly. Chips, semiconductors, servers and data centre equipment required for AI infrastructure have become active categories of international trade. According to UNCTAD, the value of the AI market is expected to rise from USD 189 billion in 2023 to USD 4.8 trillion in 2033, a 25-fold increase in ten years.[7] This growth brings trade opportunities to economies participating in the AI supply chain, but trade in advanced chips and computing equipment is subject to geopolitical factors and may be restricted through export controls and sanctions. On the other hand, the composition of trade in services is undergoing serious change. Traditional trade in services relies heavily on physical proximity and trust relationships, whereas generative AI makes possible the cross-border supply of professional services such as legal advice, medical diagnosis, financial analysis and language teaching. Mao Risheng's research shows that AI, by codifying knowledge and decomposing tasks, enables high value-added services to be "packaged" and delivered remotely, which not only expands the volume of services trade but also changes the position of service providers in global value chains (Mao, 2026). According to WTO forecasts, trade in digitally delivered services will grow by 42

[5] WTO, World Trade Report 2025.

[6] OECD, Strengthening Supply Chains through Efficiency, Resilience, AI and Environmental Performance (Paris: OECD, 2026).

[7] UNCTAD, Technology and Innovation Report 2025.

HSR (LONDON),
HOUGHTON STREET REVIEW JOURNAL
ISSN: 2058-5519|Impact factor-15.9
http://houghtonstreetreview.com/index.php/hsr

percent by 2040, significantly faster than trade in goods (WTO, 2025). The most controversial aspect of AI's impact on the structure of global trade is its distributional effect.

The UNCTAD report reveals the high concentration of AI development through several indicators: the United States owns one third of the best supercomputers and more than half of global computing capacity; in 2022 only 100 companies financed 40 percent of AI R&D, and none of them outside China came from a developing country; the United States and China account for approximately 33 percent of AI publications and 60 percent of patents.[8] These patterns of concentration make it difficult for developing countries to enter the higher segments of the AI value chain. Equally noteworthy is that AI's impact on labour markets is also unevenly distributed. The UNCTAD report estimates that AI may affect 40 percent of global jobs, with 27 percent of jobs in developed economies potentially "augmented" (rather than replaced) by AI, but developing countries' ability to benefit from this augmentation depends on their capacity to invest in infrastructure, data and skills (UNCTAD, 2025). Developed economies generally fall into the "frontrunner" category in AI readiness, while the least developed countries lag furthest behind. This means that while AI may reduce trade costs, without policy intervention its benefits may further reinforce existing development gaps. The rapid development of AI has confronted the existing system of international trade rules with new challenges. Kim et al. (2024) note that the classification of AI as a good or a service is unclear, that the boundaries of application of the GATT and GATS are not precise with respect to cross-border supply forms of AI, and that although the concept of "Mode 5" (a new mode of supplying services) has been proposed, there is no consensus among member states; moreover, existing rules cannot effectively respond to issues such as AI subsidies, algorithmic transparency and cross-border data flows (Kim et al., 2024). Mao Risheng expresses a similar view, noting that new issues such as "model as a service", cross-border data flows, algorithmic compliance and the relevance of intellectual property affect the GATT, GATS and TRIPS frameworks and are prompting faster adaptation of international trade rules (Mao, 2026). At the practical level, discussions within the WTO are proceeding slowly. Kim et al. propose actively resolving disagreements among states through the WTO's Specific Trade Concerns (STC) mechanism and exchanging policy examples on AI application, but these proposals have not yet become binding rules. At the same time, the OECD report emphasizes the influence of the trade policy environment on AI diffusion: tariffs on ICT equipment raise the cost of physical infrastructure, restrictions on computer and telecommunications services impede the use of cloud computing services, and strict restrictions on cross-border data flows hinder the collection of the diverse data needed to train AI models.[9] This shows that the openness of trade policy is an important institutional condition for the diffusion of AI technology and the realization of trade opportunities. .

Conclusion

AI is reshaping the structure of global trade, but this process is not a one-directional "efficiency revolution" — it is a systemic transformation involving complex distributional effects. The main

[8] UNCTAD, Technology and Innovation Report 2025.

[9] OECD, Strengthening Supply Chains through Efficiency, Resilience, AI and Environmental Performance (Paris: OECD, 2026).

HSR (LONDON),
HOUGHTON STREET REVIEW JOURNAL
ISSN: 2058-5519|Impact factor-15.9
http://houghtonstreetreview.com/index.php/hsr

conclusions of this paper are as follows. AI has substantial potential to reduce trade costs and stimulate trade flows. WTO scenario simulations indicate that global trade could grow by 34–37 percent by 2040, the combined result of AI efficiency gains, the expansion of

services trade and productivity growth. However, the realization of these gains depends on preconditions such as digitized trade processes and an interoperable data environment. AI is profoundly transforming the composition of trade.

Trade in services, especially digitally delivered professional services, has become the fastest-growing area, while trade in AI goods has become a new growth point in global trade. These changes create more opportunities for developed countries and highly skilled service providers, while economies relying on traditional manufacturing and low-skilled services may face pressure. The development divide is the core problem of the structure of global trade in the AI era. The high concentration of computing resources, core technologies and talent makes it difficult for developing countries to move up the AI value chain. Unless the international community invests in digital infrastructure and skills development, AI may further widen existing development gaps. From a policy perspective, the priorities for developing countries are to strengthen digital infrastructure construction, promote the digitization of trade processes, improve skills in AI application and participate actively in shaping AI rules within the multilateral trading system. The process of AI reshaping the structure of global trade is still at an early stage, and its ultimate direction depends not on the technology itself but on policy choices.

References

1. World Trade Organization. World Trade Report 2025: Making Trade and AI Work Together to the Benefit of All. Geneva: WTO, 2025.
2. United Nations Conference on Trade and Development. Technology and Innovation Report 2025: Inclusive Artificial Intelligence for Development. Geneva: UNCTAD, 2025.
3. Organisation for Economic Co-operation and Development. Strengthening Supply Chains through Efficiency, Resilience, AI and Environmental Performance. Paris: OECD, 3.2026.
4. Kim, S. J., Kim, S. E. and Jeong, H. K. "AI's Impact on International Trade: Opportunities and Challenges." Asia-Pacific Journal of Business, 2024, 15(4): 461–477.