



Original Article

ARTIFICIAL INTELLIGENCE: TRANSFORMING GLOBAL TRADE AND COMMERCE

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Abstract:

Artificial Intelligence (AI) has emerged as one of the most influential technologies reshaping the structure and functioning of global trade and commerce. This research paper examines the transformative role of AI in international trade by focusing on its impact on operational efficiency, financial inclusion, and economic development. AI applications such as intelligent logistics management, predictive analytics, automated trade finance, and digital platforms are redefining how goods and services move across borders.

The study follows a qualitative research approach based on an extensive review of academic literature, policy reports, and global trade analyses. The findings indicate that AI significantly lowers transaction and operational costs, improves supply chain resilience, and expands participation in global markets. AI-driven systems enhance productivity and contribute to higher economic growth, with projections suggesting substantial expansion in global trade volumes by 2040 if AI adoption continues at scale.

The paper also highlights the importance of AI in promoting financial inclusion by enabling digital financial services, automated credit assessment, and secures cross-border payment systems. These developments allow small enterprises and previously unbanked populations to participate in international trade. However, the adoption of AI is accompanied by critical challenges, including digital inequality, data privacy concerns, regulatory fragmentation, workforce displacement, and ethical risks.

The study concludes that while AI offers immense potential to transform global trade, its benefits can only be realized through inclusive policies, strong digital infrastructure, ethical governance, and international cooperation. The paper provides policy-oriented recommendations and identifies future research directions to support sustainable and inclusive AI-driven trade growth.

Keywords: *Artificial Intelligence, Global Trade, International Commerce, Financial Inclusion, Economic Development, Digital Trade, Supply Chain Management.*

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Introduction:

Global trade has long played a vital role in driving economic growth by facilitating specialization, efficient resource allocation, and cross-border exchange of goods and services. Over time, technological advancements have consistently reshaped international trade systems. In the contemporary digital era, Artificial Intelligence (AI) has emerged as a powerful force with the capacity to fundamentally transform global trade and commerce. Artificial Intelligence refers to computer-based systems capable of performing tasks that typically require human intelligence, such as learning, reasoning, problem-solving, and language processing. In global trade, AI enables advanced data analysis, demand forecasting, automated logistics, and real-time decision-making. Unlike traditional trade processes that depended heavily on manual operations and linear supply chains, AI-driven systems operate dynamically and adaptively.

The integration of AI into trade operations allows businesses to process vast volumes of data in real time, anticipate market changes, optimize inventory levels, and reduce logistical disruptions. AI-powered translation tools and digital platforms further reduce language and communication barriers, enabling firms to engage more effectively in international markets. As a result, AI has become a strategic asset for firms seeking competitiveness in the global economy.

The impact of AI on global commerce is multidimensional. On one hand, it enhances efficiency and lowers costs; on the other, it enables new trade models, particularly in digital services and e-commerce. International organizations have recognized AI as a key driver of future trade growth, emphasizing its potential to significantly increase global trade volumes and economic output.

However, AI adoption also presents serious concerns. Access to data, digital infrastructure, and technical skills is unevenly distributed across countries. This digital divide threatens to widen economic disparities between developed and developing nations. Without appropriate policy interventions and global collaboration, AI-driven trade growth may remain concentrated among technologically advanced economies.

This research paper examines the transformative influence of AI on global trade with special emphasis on financial inclusion and economic development. It also identifies key challenges and offers recommendations to ensure that AI-driven trade growth remains inclusive, sustainable, and equitable.

Research Problem and Objectives:

Research Problem:

The rapid integration of Artificial Intelligence into global trade systems has raised critical questions regarding its economic, social, and policy implications. While AI offers significant potential to improve efficiency, productivity, and trade volumes, its uneven adoption across countries and industries poses serious challenges. There is a growing need to understand how AI affects global trade patterns, who benefits from its adoption, and what policy measures are necessary to ensure balanced and inclusive growth.

Research Objectives:

The primary objectives of this study are:

1. To examine the role of Artificial Intelligence in transforming global trade and commercial activities.
2. To analyze the impact of AI on financial inclusion in the context of international trade.
3. To assess the contribution of AI to economic development through productivity and growth.



4. To identify major challenges associated with AI adoption in global trade systems.
5. To suggest policy recommendations and future research directions for inclusive AI-driven trade development.

Literature Review with Research Gap and Key Concepts:

AI and Global Trade:

Technological innovation has always been a catalyst for changes in international trade. From industrial machinery to digital platforms, each technological wave has reshaped global commerce. Contemporary research identifies Artificial Intelligence as the next major driver of transformation. AI enhances forecasting accuracy, automates logistics, and improves decision-making across trade operations.

The role of technology in shaping global trade has been widely discussed in economic and business literature. Early studies on international trade emphasized the importance of transportation innovations, communication systems, and mechanization in reducing trade barriers and increasing global connectivity. With the emergence of digital technologies, researchers began focusing on how information and communication technologies (ICT) influence trade efficiency and market integration. Artificial Intelligence (AI) represents the latest phase in this technological evolution, offering advanced capabilities that go beyond traditional automation.

Several scholars highlight that AI enhances global trade by improving decision-making through data-driven insights. Studies suggest that AI-based predictive analytics enables firms to forecast demand more accurately, reduce inventory costs, and respond quickly to changes in global markets. By analysing large volumes of real-time data, AI systems help firms optimize supply

chain operations and minimize disruptions caused by uncertainties such as fluctuating demand, transportation delays, or geopolitical risks.

Research on global value chains indicates that AI is transforming production and trade structures. According to recent literature, AI facilitates better coordination among suppliers, manufacturers, and distributors across countries. Intelligent logistics systems, powered by machine learning algorithms, improve route planning, warehouse management, and delivery schedules. These advancements significantly reduce transaction costs and enhance trade competitiveness, particularly for multinational firms engaged in complex cross-border operations.

A growing body of literature also examines the relationship between AI and financial inclusion in the context of international trade. Scholars argue that AI-driven financial technologies expand access to credit, insurance, and payment systems for small and medium enterprises (SMEs). Traditional financial systems often exclude small exporters due to lack of credit history or collateral. AI-based credit scoring models, which use alternative data such as transaction records and digital footprints, help overcome these limitations and enable broader participation in global trade.

Studies focusing on economic development emphasize that AI contributes to long-term growth by increasing productivity and encouraging innovation. Researchers note that automation and intelligent systems reduce production costs while improving product quality and consistency. At the macroeconomic level, AI adoption is associated with higher output levels, increased trade flows, and improved competitiveness in global markets. However, the literature also cautions that the benefits of AI are unevenly distributed, with developing economies



facing challenges related to infrastructure, skills, and access to advanced technologies.

Recent global trade studies project that widespread AI adoption could significantly increase global trade volumes and economic output by improving efficiency and reducing operational barriers. AI is also reshaping global value chains by enabling firms to respond quickly to market demand, manage risks, and improve coordination among trade partners.

Research Gap:

A] Integration of AI with Financial Inclusion and Economic Development:

1. While many studies explore AI's efficiency and automation benefits in global trade, there is limited research examining its combined effect on financial inclusion and economic development.
2. The link between AI-enabled trade systems, easier access to finance for small businesses, and broader economic growth is still not clearly understood.

B] Insufficient Focus on Policy and Inclusivity:

1. Most research emphasizes technological solutions such as predictive analytics, intelligent logistics, and automation.
2. There is a lack of focus on policies, governance frameworks, and strategies for inclusive growth, particularly for developing nations where digital infrastructure and skills are limited.

C] Neglect of Small and Medium Enterprises (SMEs):

1. Current studies largely concentrate on large corporations and global supply chains.
2. Research on how SMEs can adopt AI to participate in international trade, overcome financial barriers, and leverage digital platforms is still scarce.

D] Limited Exploration of Long-Term Economic Impacts:

1. Although AI is known to enhance productivity and economic growth, its effects on employment patterns, sustainable productivity, and competitiveness across sectors are underexplored.
2. The long-term consequences for the economy, particularly in emerging markets, require further study.

E] Need for a Holistic Perspective on AI in Global Trade:

1. Most literature examines AI's impact in isolation, focusing on logistics, finance, or trade efficiency individually.
2. There is a gap in research that integrates technology, finance, governance and international cooperation to provide a comprehensive understanding of AI's role in shaping future global trade.

Key Concepts:

Artificial Intelligence:

AI refers to intelligent systems capable of learning from data and performing complex tasks such as prediction, automation, and optimization.

Financial Inclusion:

Financial inclusion involves ensuring access to affordable and reliable financial services for individuals and businesses, particularly underserved populations.

Economic Development:

Economic development reflects long-term improvements in income levels, productivity, employment opportunities, and overall living standards.

AI in Trade Operations and Policy:

AI applications are increasingly visible in logistics, customs clearance, and risk assessment.



Automated compliance checks, predictive demand analysis, and intelligent inventory systems reduce delays and lower trade costs. However, traditional trade policies often fail to address digital trade issues such as data governance, AI ethics, and cross-border data flows, highlighting the need for updated regulatory frameworks.

Research Methodology:

This study employs a qualitative research methodology based on an in-depth review of existing literature and policy documents. Academic journals, international trade reports, and institutional publications form the primary data sources. Thematic analysis is used to identify key patterns and insights related to AI's role in global trade, financial inclusion, and economic development.

Although qualitative analysis provides conceptual depth, it does not generate new empirical data. Future studies may use quantitative methods to validate and extend these findings.

Key Findings – Financial Inclusion:

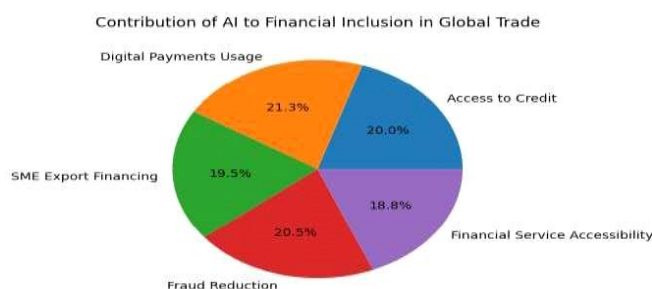
AI has significantly improved financial inclusion by enabling digital financial services that are accessible, efficient, and scalable. AI-powered credit assessment tools allow financial institutions to evaluate borrowers using alternative data, extending credit access to individuals and small enterprises without formal credit histories.

AI-based fraud detection systems enhance security and trust in digital transactions, encouraging broader participation in financial systems. Chatbots and virtual assistants simplify financial services, while AI-enabled mobile banking platforms support users with limited literacy or technological experience.

Improved financial inclusion directly supports global trade by enabling SMEs to access export financing, digital payment systems, and international marketplaces. However, limited digital infrastructure and weak regulatory frameworks continue to restrict AI's reach in some regions.

Table 1: Key Financial Inclusion Findings of the Study:

Area of Financial Inclusion	Role of Artificial Intelligence	Key Finding
Access to Credit	AI-based credit scoring using alternative data	Credit access expanded for SMEs and unbanked traders
Digital Payments	AI-enabled secure and real-time payment systems	Increased participation in cross-border trade
SME Export Financing	Automated trade finance and risk assessment	Faster and easier export financing
Fraud Detection	AI-driven fraud monitoring systems	Higher trust in digital financial transactions
Financial Service Accessibility	Chatbots and AI-powered platforms	Improved access for low-literacy and rural users



Key Findings – Economic Development:

AI contributes to economic development by improving productivity, supporting innovation, and enabling new business models. Automation reduces production costs, while predictive maintenance minimizes operational disruptions. AI-driven supply chain optimization enhances efficiency and responsiveness.

At the macroeconomic level, AI adoption is associated with higher GDP growth and increased trade flows. AI also promotes sectorial transformation across manufacturing, services, and e-commerce. Despite these benefits,

challenges such as skill displacement and unequal access to technology remain significant concerns.

Key Findings are

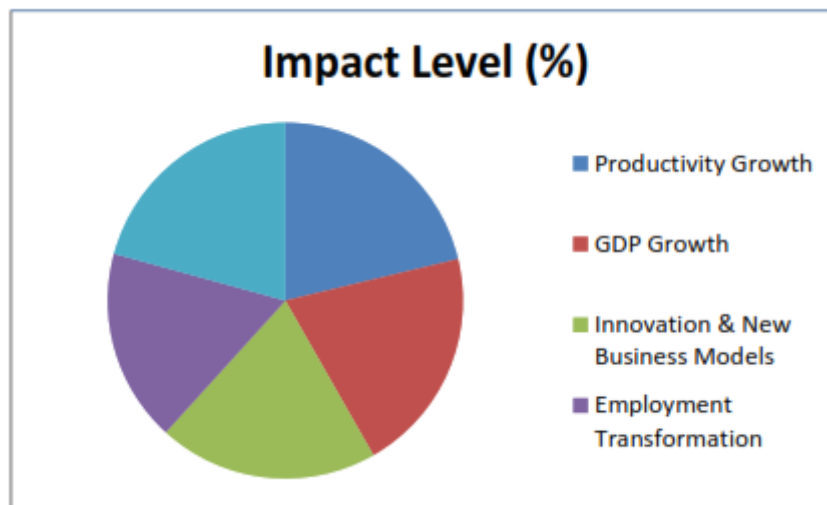
- AI significantly increases productivity and operational efficiency.
- AI-driven trade optimization contributes to higher GDP growth.
- AI encourages innovation and new business models.
- AI enhances global competitiveness of firms and economies.
- Employment patterns are transforming, requiring skill development and reskilling initiatives.

Table 2: Key Economic Development Findings of the Study

Economic Dimension	Role of Artificial Intelligence	Key Finding
Productivity Growth	Automation and predictive analytics	Significant increase in output and efficiency
GDP Growth	Optimized trade and supply chains	Higher national income and trade expansion
Innovation	Data-driven decision-making	Emergence of new business models
Employment Structure	Skill-based transformation	Shift towards high-skilled employment
Global Competitiveness	Cost reduction and quality improvement	Stronger position in global markets

Table 2: Impact Level of AI on Economic Development Indicators

Economic Development Indicator	Impact Level (%)
Productivity Growth	85%
GDP Growth	82%
Innovation & New Business Models	80%
Employment Transformation	70%
Global Competitiveness	83%



Challenges and Management Implications:

AI adoption in global trade faces challenges including technological inequality, data privacy risks, regulatory fragmentation, workforce displacement, ethical concerns, and cybersecurity threats. Addressing these challenges requires coordinated strategies involving infrastructure investment, policy harmonization, workforce reskilling, ethical AI governance, and robust risk management frameworks.

Conclusion:

Artificial Intelligence is redefining global trade and commerce by enhancing efficiency, promoting financial inclusion, and supporting economic development. While AI offers immense potential to expand global trade and productivity, its benefits are unevenly distributed. Overcoming

digital divides, regulatory gaps, and ethical concerns is essential to ensure inclusive growth. AI should be viewed not merely as a technological tool but as a strategic driver of future trade systems.

Recommendations:

1. Strengthen digital and technological infrastructure.
2. Develop harmonized digital trade and data governance policies.
3. Invest in AI-focused education and skill development.
4. Promote AI-driven financial inclusion initiatives.
5. Implement transparent and ethical AI governance frameworks.



Future Scope of the Study:

- Conduct quantitative studies to evaluate AI's effect on trade efficiency, productivity, and economic outcomes.
- Perform comparative research across countries and industries to identify sector-specific impacts of AI.
- Investigate how AI can enhance financial access for small businesses and underserved communities in global trade.
- Examine long-term economic growth and workforce implications of AI adoption.
- Explore AI's role in sustainable trade practices and reducing environmental impact.
- Study policy frameworks and governance mechanisms to ensure responsible and inclusive AI use.
- Research the combined effect of AI and emerging technologies like blockchain and IoT on international trade.
- Future research may adopt quantitative approaches to measure AI's direct impact on trade and economic outcomes. Comparative studies across countries and sectors, as well as research on AI's environmental implications in trade logistics, will further enrich understanding.

Questions and Answers (Q&A)

Q1: What is the major influence of Artificial Intelligence on global trade?

Artificial Intelligence significantly improves efficiency in international trade by automating processes, lowering transaction costs, and supporting data-based decision-making. Through tools such as predictive analytics and intelligent automation, AI helps businesses explore new markets and increases the overall volume of global trade.

Q2: In what ways does AI support financial inclusion?

AI promotes financial inclusion by enabling advanced credit assessment systems, customized financial services, and real-time fraud monitoring. These technologies make financial products more accessible to small businesses, startups, and underserved groups that were previously excluded from formal financial systems.

Q3: What difficulties arise while adopting AI in global trade systems?

The integration of AI in global trade faces several challenges, including inadequate digital infrastructure in some regions, differences in international regulations, concerns related to data security and privacy, and potential job losses caused by increased automation.

Q4: Why is it necessary to update trade policies in the era of AI?

Existing trade regulations are largely designed for traditional commerce and do not adequately cover emerging issues such as cross-border data exchange, ethical use of AI, and digital trade governance. Updating trade policies is essential to ensure fair, transparent, and responsible use of AI technologies.

Q5: How can developing nations gain advantages from AI-driven trade?

Developing countries can benefit from AI by strengthening digital infrastructure, investing in skill development, and encouraging technology adoption. These efforts can lead to higher productivity, increased export potential, and broader financial inclusion in the global trade environment.

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