УДК 338.2

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AI'S ROLE IN TRANSFORMING CUSTOMER EXPERIENCE AND STREAMLINING SUPPLY CHAINS FOR GLOBAL BUSINESSES

This research aimed to explore the impact of artificial intelligence (AI) on personalizing customer experience in international business and its benefits for companies in the global economy. It also evaluated AI's implications on supply chain management, focusing on efficiency and sustainability. Using a quantitative research approach and primary surveys with stakeholders in international business, the study revealed that AI significantly enhances supply chain management effectiveness through forecasting, financial operation optimization, and insight generation. AI technologies enable businesses to analyze vast amounts of data, accurately predicting customer preferences and behavior. This predictive capability enhances customer experience by providing personalized recommendations and services tailored to individual needs. For instance, AI can analyze purchasing patterns and browsing histories to suggest products that customers are likely to be interested in, thereby increasing the likelihood of purchase, and fostering customer loyalty. With AI and big data, businesses can develop precise opportunities for customer relationships, achieving higher market share and customer loyalty. AI-driven personalization strategies allow companies to target specific customer segments with customized marketing campaigns, improving engagement and conversion rates. Additionally, AI helps businesses understand and anticipate customer needs in different regions, allowing them to adapt their offerings to local preferences and trends. This regional adaptability is crucial in international business, where customer preferences can vary significantly across different markets. In supply chain management, AI's impact is profound. AI systems can optimize inventory management, predict demand fluctuations, and streamline logistics operations. By analyzing real-time data, AI can identify potential disruptions and suggest proactive measures to mitigate risks, ensuring a smooth and resilient supply chain. This capability not only enhances efficiency but also contributes to sustainability by reducing waste and improving resource utilization. In summary, AI plays a pivotal role in transforming customer experience and supply chain management in international business. By leveraging AI's predictive and analytical capabilities, companies can offer personalized services, enhance customer loyalty, and achieve higher efficiency and sustainability in their supply chain operations, ultimately benefiting the global economy.

Keywords: Artificial Intelligence, Customer Experience, International Business, Supply Chain Efficiency.

1. STATEMENT OF THE PROBLEM IN A GENERAL APPEARANCE AND ITS CONNECTION WITH IMPORTANT SCIENTIFIC OR PRACTICAL TASKS

For the past few years, AI has been able to personalize customer experience, as it has the capability of gathering information about each customer and using it in a way that caters to the needs and wants of the customer (Ameen et al., 2021). This increase in AI application makes it more possible to monetize every customer in the supply chain. Technologies such as AI, machine learning, and big data analytics have certainly brought both direct and indirect benefits.

Artificial intelligence (AI) has quickly become a powerful tool for the personalization of customer experience and supply chain efficiency in international business. Big data digitization and analysis have given marketers the right equipment for personalizing messages in business for companies, individualizing customer experiences, and providing the best product to the

right people (Trawnih, et al., 2022). AI allows companies to understand and anticipate customer needs, enabling personalized recommendations, targeted marketing, and improved customer engagement.

Moreover, AI's role in supply chain management includes forecasting demand, optimizing inventory, and improving operational efficiency. By leveraging AI, businesses can enhance their responsiveness to market changes, reduce costs, and increase overall sustainability. The integration of AI in international business operations not only enhances customer satisfaction but also drives competitive advantage and long-term success.

The different backgrounds constituting global society necessitate a supply chain to use sensitive production technologies that have a high likelihood of being successful in the appropriate thing for the appropriate person. In the area of AI's effect on customer experiences, various technological developments are available, along with myriad possibilities for scientists (Upreti et al., 2023). However, the consolidation of a large amount of data available which constitute consumer preferences and lifestyles to maximize user appeal is yet to be accomplished (Trawnih, et al., 2022).

One of the vital objectives of international businesses is to enhance the quality of the customer experience, retention, and supply chain efficiency (Rana & Daultani, 2023). The deployment of AI and machine learning in these areas provides considerable business value to organizations (Upreti et al., 2023). Unlike prior AI literature which mainly laid down the ground rules and existing status of AI across various domains, this paper has a dedicated business angle by revealing the contribution of AI in enhancing customer service and experience and its application in personalizing international supply chain services. A brief empirical study of available literature on AI and supply chain management further explores the rarely discussed side of the business use of AI, clarifying the potential benefits of AI to practitioners interested in the concept.

2. ANALYSIS OF LATEST RESEARCH AND PUBLICATIONS

AI in Supply Chain Forecasting and Optimization: Artificial Intelligence (AI) has become a crucial tool in Supply Chain Management (SCM), significantly improving responsiveness, stability, and risk mitigation (Modgil et al., 2022; Olan et al., 2022). AI technologies transform traditional supply chain models through enhanced data processing and decision-making capabilities (Pournader et al., 2021), and play a vital role in agile supply chains, organizational outcomes, and digitalization.

AI is key in financing and sustainability within the food and beverage industry, extensively applied in quality improvement, fraud detection, and resilience assessment (Olan et al., 2021). It supports the creation of long-term supply chains, risk management, and sustainable financing (Rana & Daultani, 2022), and strengthens supply chains against disruptions (Trong & Kim, 2020).

Research integrating AI with technologies like Blockchain and IoT is expanding, particularly in sustainability and smart cities (Shen et al., 2023). AI has also been critical in mitigating COVID-19 supply chain impacts (Belhadi et al., 2021). Generative AI aids in risk assessment and inventory management, optimizing transportation, storage, and order picking, which enhances fleet productivity and reduces transportation costs (Xidias et al., 2022). AI-driven robotics and automation improve warehouse resource utilization, capacity, and scheduling accuracy. Moreover, AI assists in supplier management by analyzing performance and market data to optimize supplier selection and management.

AI in Personalizing Customer Experience: Customer experience is considered one of the key drivers of competitive advantage and business performance (Lemon & Verhoef, 2016). It can provide unique and long-term advantages to firms. Customer interaction is now more dependent on artificial intelligence (AI) (Ameen et al., 2021). Nguyen and Mogaji (2023) showed that when the quality of AI is high, it can have a beneficial effect on customers. AI can also improve the continuity of the customer experience (El Abed & Castro-Lopez, 2024). Prentice and Nguyen (2020) posited that the incorporation of AI into other business processes such as the customer experience enhances sales and creates value (Vlacic et al., 2021) and efficiency and performance (Ivanov & Webster, 2017).

AI aids marketers in gaining deeper insights into their target audiences (Flynn et al., 2019). However, interactions that are powered by

artificial intelligence can be problematic at times and this can result in frustration, confusion, and dissatisfaction among the customers. For instance, AI systems often rely on customer input, which can complicate services and contribute to dissatisfaction and failures. AI-enabled personalization (AIP) involves using AI to analyze data and predict customer behavior, leveraging extensive data and advanced algorithms (Lemon & Verhoef, 2016). However, some customers worry about data collection for personalized recommendations, feeling this intrudes on their privacy (Nam & Kannan, 2020; Tueanrat et al., 2021). Increased privacy levels are associated with higher perceptions of value, fairness, trust, and satisfaction (Tueanrat et al., 2021).

Therefore, service providers ought to address confidentiality issues with clear policies (Paluch & Tuzovic, 2019). AI adoption rates are influenced by customers' understanding of its benefits, as it can refine acquisition experiences by making them more engaging and cost-effective (Tueanrat et al., 2021). Ultimately, AI can improve customer experience and strengthen relationships, leading to enhanced brand loyalty and operational efficiency (Moliner et al., 2018).

3. SELECTION OF PREVIOUSLY UNSOLVED PARTS OF THE GENERAL PROBLEM TO WHICH THIS ARTICLE IS DEDICATED

The unsolved parts of the general problem this research focuses on include how to measure and quantify AI's impact on personalized customer experience, the implementation strategies of AI in supply chain management to optimize financial operations and generate insights, and the quantification of these impacts. Additionally, it explores how AI can predict customer preferences and behavior in different regions, and how businesses can develop precise customer relationships using AI to increase market share and loyalty, improve marketing campaigns, and enhance customer engagement and conversion rates.

4. FORMULATION OF THE PURPOSES OF THE ARTICLE

This research seeks to identify AI's impact on personalizing customer experience in international business and how this phenomenon benefits companies in the global economy. It also seeks to evaluate the implication of AI's impact on supply chain management in making the supply chain more efficient and sustainable.

5. PRESENTATION OF THE MAIN MATERIAL OF THE RESEARCH WITH FULL JUSTIFICATION OF THE OBTAINED SCIENTIFIC RESULTS

AI facilitates forecasting, optimization of financial operations, and insight generation, which has a significant positive impact on supply chain management effectiveness. With so many businesses involved in international endeavors, it has become a necessity for them to be able to provide customers with personalized, outstanding customer service that goes beyond any competitors. With the help of AI and big data, businesses have been able to develop precise opportunities for customer relationships, thus attaining a higher level of market share and customer loyalty. However, while AI has made personalized suggestions and relationships with international customers easier, there are other ways that businesses can reap the benefits of AI technology to better their international business. One such area where businesses can use the data collected from the use of AI is to develop a more efficient supply chain, making it less susceptible to foreign government policy actions.

As such, the following hypothesis is developed as a result.

H1= AI facilitates forecasting, optimization of financial operations, and insight generation, which has a significant positive impact on supply chain management effectiveness.

In Table 1, R squared = 0.471, indicating that the independent variables explain 47.1% of the dependent variable, showing that this is a very good model.

In Table 2 below, $F_{(4, 96)} = 21.387$, p value <0.05, suggesting that this model can significantly predict the outcome in this study.

In the coefficients table below, the decision rule to support or reject the hypothesis is as follows: if more than 50% of the predictors show statistical significance (p value <0.05), then the hypothesis is supported. Otherwise, it is rejected.

In Table 3 below, 3 out of 4 predictors showed statistical significance, suggesting that the hypothesis H1 is supported, and the conclusion made is that AI facilitates forecasting, optimization of financial operations, and insight generation, which has a significant positive

impact on supply chain management effectiveness.

Above these indicates AI is used in the analysis, design, testing, training, and deployment of efficient algorithms that could potentially reduce the unpredictability of customer goodwill towards purchasing their preferred products and services, which shape an entity's revenue. Under these conditions, AI adjusts the personalized customer experience, including cross-sell, upsell, and after-sales, to sell value-added services.

Table 1. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.686[a]	.471	.449	.933
a. Predictors: (Constant), Customer Relationship Management (CRM) Systems, Enterprise Resource Planning (ERP) Systems, Blockchain, Artificial Intelligence (AI) and Machine Learning (ML)				

Table 2. ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	74.527	4	18.632	21.387	.000[b]
	Residual	83.631	96	.871		
	Total	158.158	100			
a. Dependent Variable: To what extent do you believe Artificial Intelligence in your organization have improved the effectiveness of the supply chain and customer relationships in international business operations?						
b. Predictors: (Constant), Customer Relationship Management (CRM) Systems, Enterprise Resource Planning (ERP) Systems, Blockchain, Artificial Intelligence (AI) and Machine Learning (ML)						

In the international business scenario, AI is likely to improve new opportunities in managing and optimizing automation systems, including enterprise-to-enterprise business. The forecasting of future demand and price from the customer using AI has illustrated that organizations' practices towards customers and supply chain partnerships are purely centralized. Consequently, such practices enable oligopolistic competition at the top level of leaders, guiding small middle retailers towards directed competition. This dynamic continues to spike high supply chain sustainability performance by improving the service level and the consumption of market products.

Furthermore, AI-driven personalization strategies allow companies to target specific customer segments with customized marketing campaigns, improving engagement and conversion rates. Additionally, AI helps businesses understand and anticipate customer needs in different regions, enabling them to adapt

their products and services to meet diverse cultural and regional preferences. AI's integration into international business operations enhances overall efficiency and fosters sustainable growth.

Table 3. Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.967	.693		1.394	.166
	Artificial Intelligence (AI) and Machine Learning (ML)	-.145	.154	-.087	-.940	.350
	Blockchain	.742	.086	.685	8.611	.000
	Enterprise Resource Planning (ERP) Systems	.085	.084	.086	1.013	.014
	Customer Relationship Management (CRM) Systems	.026	.083	.026	.314	.034

a. Dependent Variable: To what extent do you believe Artificial Intelligence in your organization have improved the effectiveness of the supply chain and customer relationships in international business operations?

6. CONCLUSIONS FROM THIS RESEARCH AND PROSPECTS FOR FURTHER EXPLORATION IN THIS DIRECTION

Typical examples of AI applications pertaining to customer experience include virtual assistants and chatbots, personalizing ads directly to customer micro-segments, or providing personalized recommendations. Firms operating internationally can use AI in their customer-centric strategies by, for example, personalizing their services to customers who are present in multiple countries or targeting international business travelers. Six potential ways to apply AI in supply chain management in international businesses refer to demand and supply unpredictability, capacity optimization based on large and diverse data sets, predictive maintenance, personalized supply chain automation, mass customization, and accelerated order fulfillment. International businesses can exploit the advantages created by the application of AI to support personalization strategies. Firstly, AI, by being able to process enormous amounts of real-life customer data, can enable highly granular customer micro-segmentation, following which international businesses can market their solutions to both "domestic" customers and "international" ones.

This research sought to identify AI's impact on personalizing customer experience in international business and how this phenomenon benefits companies in the global economy. It also evaluates AI's impact on supply chain management in enhancing efficiency and sustainability. Utilizing a quantitative research approach, the study, through surveys with international business stakeholders, establishes that AI facilitates forecasting, optimization of financial operations, and insight generation, significantly improving supply chain management effectiveness.

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AI technologies enable businesses to analyze vast amounts of data, predicting customer preferences and behaviors accurately. This predictive capability enhances customer experience by providing personalized recommendations and services tailored to individual needs. AI-driven personalization strategies allow companies to target specific customer segments with customized marketing campaigns, improving engagement and conversion rates. Additionally, AI helps businesses understand and anticipate customer needs in different regions, enabling them to adapt their products and services to meet diverse cultural and regional preferences.

The research also explores AI's role at the intersection of international business and supply chain management, highlighting its influence on sourcing, manufacturing, and R&D. Future research should consider cultural influences on AI applications and replicate studies across various countries to provide a comprehensive understanding of AI's impact on international business operations.

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Анотація
ЧЖАН КУАН
РОЛЬ ШТУЧНОГО ІНТЕЛЕКТУ У ТРАНСФОРМАЦІЇ КЛІЄНТСЬКОГО ДОСВІДУ ТА ОПТИМІЗАЦІЇ ЛАНЦЮГІВ ПОСТАЧАННЯ ДЛЯ ГЛОБАЛЬНОГО БІЗНЕСУ

Це дослідження мало на меті дослідити вплив штучного інтелекту (ШІ) на персоналізацію клієнтського досвіду в міжнародному бізнесі та його переваги для компаній у глобальній економіці. Також оцінено наслідки штучного інтелекту для управління ланцюгом поставок, зосередивши увагу на ефективності та сталості. Використовуючи підхід кількісного дослідження та первинні опитування зацікавлених сторін у міжнародному бізнесі, дослідження показало, що штучний інтелект значно підвищує ефективність управління ланцюгом поставок за допомогою прогнозування, оптимізації фінансових операцій та формування розуміння. Технології штучного інтелекту дозволяють компаніям аналізувати величезні масиви даних, точно прогнозуючи вподобання та поведінку клієнтів. Ця можливість прогнозування покращує взаємодію з клієнтами, надаючи персоналізовані рекомендації та послуги, адаптовані до індивідуальних потреб. Наприклад, штучний інтелект може аналізувати моделі покупок та історію перегляду, щоб запропонувати продукти, які, ймовірно, зацікавлять клієнтів, тим самим збільшуючи ймовірність покупки та сприяючи лояльності клієнтів. Завдяки штучному інтелекту та великим даним підприємства можуть створювати точні можливості для відносин із клієнтами, досягаючи більшої частки ринку та лояльності клієнтів. Стратегії персоналізації, керовані штучним інтелектом, дозволяють компаніям націлюватися на певні сегменти клієнтів за допомогою налаштованих маркетингових кампаній, покращуючи рівень залучення та конверсії. Крім того, штучний інтелект допомагає компаніям розуміти та передбачати потреби клієнтів у різних регіонах, дозволяючи їм адаптувати свої пропозиції до місцевих переваг і тенденцій. Ця регіональна адаптованість має вирішальне значення в міжнародному бізнесі, де вподобання клієнтів можуть значно відрізнятися на різних ринках. Вплив штучного інтелекту на управління ланцюгом поставок дуже великий. Системи ШІ можуть оптимізувати управління запасами, прогнозувати коливання попиту та оптимізувати логістичні операції. Аналізуючи дані в режимі реального часу, штучний інтелект може виявити потенційні збої та запропонувати проактивні заходи для пом'якшення ризиків, забезпечуючи плавну та стійку систему поставок. Ця здатність не тільки підвищує ефективність, але й сприяє стійкості за рахунок зменшення відходів і покращення використання ресурсів. Таким чином, штучний інтелект відіграє ключову роль у трансформації клієнтського досвіду та управлінні ланцюгом поставок у міжнародному бізнесі. Використовуючи передбачувані та аналітичні можливості штучного інтелекту, компанії можуть пропонувати персоналізовані послуги, підвищувати лояльність клієнтів і досягати вищої ефективності та сталості в своїх операціях ланцюга поставок, що в кінцевому підсумку приносить користь глобальній економіці.

Ключові слова: штучний інтелект, клієнтський досвід, міжнародний бізнес, ефективність ланцюга поставок.

Бібліографічний опис статті:

Zhang Kuan (2024) AI's role in transforming customer experience and streamlining supply chains for global businesses. *Innovation and Sustainability*, no. 3, pp. 45-52.

Чжан Куан Роль штучного інтелекту у трансформації клієнтського досвіду та оптимізації ланцюгів постачання для глобального бізнесу. *Innovation and Sustainability.* 2024. № 3. С. 45-52.