



RESEARCH ARTICLE

The Impact of AI on Enhancing Fintech: Examining the Mediating Role of Sustainable Innovation in the Exchange Industry of Jordan

Hussein Altarawneh*

Faculty of Finance and Business Department of Financial and Banking Sciences, The World Islamic Science & Education University, Jordan

ARTICLE INFO

ABSTRACT

Received: Dec 29, 2024

Accepted: Apr 10, 2025

Keywords

Efficiency

Adaptability

Flexibility

Fin Tech.

Artificial Intelligence

***Corresponding Author:**

hussien.tarawneh@wise.edu.jo

This study investigates the association between technological innovations and the fintech sector in the Exchange industry in Jordan and the mediating role of artificial intelligence (AI). The financial services industry, including businesses ranging from cash handling to currency exchange, is adopting digitalization to enhance efficiency, scale, and gains relative to the competition. AI is becoming one of the most critical enablers in modern operations. This research explores the significant relationship between major technological innovations, including blockchain, IoT, and cloud computing, and fintech performance through currency exchange businesses in Jordan. It further analyzes how AI mediates these innovations of providing decision-making, task automation, and predictive analytics. We adopted a mixed-methods approach to gain a holistic view of the AI-led innovations in the foreign exchange sector by utilizing qualitative and quantitative data. The findings amplify AI's capacity to revolutionize operational efficiency, resilience, and agility in the fintech domain and provide key insights for stakeholders in currency exchange businesses, governmental regulators, and technology developers in Jordan.

INTRODUCTION

Jordan's currency exchange market has been fueled by globalization, fast-paced technological progress, and changing financial market requirements [1]. These companies are now under pressure to deliver their services quicker and at a lower cost while sustaining high quality and performance in an increasingly complicated financial environment [2]. Therefore, technological innovations have aided as critical enablers of operational efficiency, especially in the currency exchange businesses where customer satisfaction and process optimization are paramount [3]. Today, artificial intelligence (AI) is a transformative technology that provides new solutions to transaction monitoring, fraud detection, customer service automation, and financial forecasting. Machine Learning Automating Elements in Fintech, AI not only automates elements of Fintech but also increases current technologies, optimizing workflows and facilitating the possibility of more informed decision-making. AI is already making its mark in Jordan's currency exchange sector, with companies increasingly implementing predictive analytics, real-time data processing, and intelligent resource management solutions to enhance service delivery and operational efficiency [4]. These systems are becoming increasingly complex and interconnected, which means challenges in system interoperability and technology sustainability are emerging, and urgent industry-wide focus is needed to keep pace with the rapidly changing market environment. Moreover, amidst rising environmental awareness, AI is increasingly used to mirror sustainability practices across the fintech industry [5]. With the availability of AI, currency exchange businesses can monitor and manage consumption and reduce the utilization of their resources, enabling converging sustainable initiatives and minimizing their carbon footprint. AI-driven solutions bring innovations that revolutionize Jordan's Exchange Industry while aligning with the country's economic development goals, enabling sustainable growth and development in the sector [6].

Research Questions:

How does artificial intelligence mediate the relationship between technological innovations and operational efficiency in the Exchange Industry in Jordan?

What are the key challenges currency exchange companies in Jordan face when implementing AI solutions to enhance their operational processes and sustainability efforts?

How can AI-driven innovations contribute to the long-term growth and competitiveness of the currency exchange sector in Jordan?

1.1 Research Problem

New technologies, especially artificial intelligence (AI), can fundamentally improve performance, sustainability, and decision-making in the currency exchange sector in Jordan. Nevertheless, integrating these technologies into the complex systems of Jordan's currency exchange market poses challenges [7]. This produces a fundamental problem for organizations pervading in this area because the biggest challenge is being able to make the right choice, with regards to technologies to implement, adapting them according to the organization and when, why and how to implement based on business objectives, including but not limited to transaction processing improvements, fraud detection and customer service automation[8]. AI has incredible potential, but its presence in fintech systems remains controversial due to barriers posed by legacy technologies, system interoperability problems, and the fast pace of technological change. With the adoption of AI technologies in different areas of fintech operations, it is becoming essential for currency exchange establishments in Jordan to verify that the solutions they integrate actually match their needs and have the potential to be deployed [9]. For currency exchange companies in Jordan that want to improve their performance, minimize costs, and establish a position in the fintech realm, the greatest challenge is discovering the common ground between utilizing AI for operational effectiveness while also remaining competitive in a constantly changing marketplace.

1.2 Research Gap

There is plentiful literature on technological innovation and AI in the fintech landscape. However, a research gap exists regarding how these technologies' implementation mediates the expectations for how digitalized fintech processes optimally function [10]. Despite extensive discussions surrounding the relationship between organizations and AI, there is little in the way of assertive guidance as to how currency exchange businesses in Jordan can tap into the advantages of AI in their operations, particularly in the absence of Industry 4.0 technologies [11]. Moreover, the role of sustainability is yet in few studies discussed AI's possible role in reducing sustainability barriers in fin-techs. However, the Fintech processes can easily apply sustainability. From a dry resource perspective, AI can assist enterprises in balancing consumption patterns that would help optimize operations, which directly contribute to sustainability while suggesting eliminating redundant power and other resource consumption behaviors. Nevertheless, although theoretical studies regarding the application of AI infintech have been conducted to introduce its potential implications, research on the efficient use of AI to achieve sustainability in fintech still lacks attention [12]. New technologies, such as AI, while penetrating into currency exchange business operational processes need to be explored, more to see how AI can improve transparency, decision-making abilities, and company performance variations. In particular, for Jordan's currency exchange industry, there is a clear need for further domain-specific guidance on the application of AI. This research bridges such a gap by investigating AI's mediating role in fintech digital transformation and casting practical knowledge to help currency exchange businesses in Jordan implement AI-based solutions more efficiently [13].

LITERATURE REVIEW

2.1 Fintech Management Efficiently

With the focus on efficiency in Fintech management, tech innovation has very much turned the sector on its head with the way transactions are executed faster and more accurately than before[14]. Automation, data analytics tools, and AI have somewhat made the operations lean, simplified transactional processes, reduced lead time, and improved inventory management- all

in financial services [15]. In line with currency exchange, efficient digital systems are made to extract more with less, reduce waste, and be agile to cater to the market. By automating thousands of decision-making processes, enhancing the accuracy of currency exchange rate forecasts, and offering predictive maintenance of the underlying architecture that corporate banks depend on, AI has changed how deals are executed, how dollars move, and how consumers' data is processed [16]. AI's ability to process large data sets in real time has enabled currency exchange firms in Jordan to establish more interactive and agile agencies. Consequentially, this improves resource optimization, service delivery, and performance in the fintech domain [17].

2.2 Fintech Management Adaptability

Currency exchange businesses in a globalized financial world, the ability to react promptly to evolving market trends, technological progress, and unpredictable disturbances is paramount. Suppose there is one thing that has become even more evident today. In that case, the FinTech systems are adaptable. They can change with the times, as they can rise to newer demands, like changing customer behaviors, changing regulations in finance, or sudden market movements [18]. Machine learning, advanced analytics, and artificial intelligence (AI) have immensely augmented the responsiveness of Fintech systems, distinguishing the trade and giving organizations the visibility they have never experienced before [19]. Cash exchange businesses leverage AI tools to respond more quickly whenever new trends emerge or a potential threat is detected and adjust pricing, customer service strategies, or compliance measures in real time. Such flexibility ensures that companies can stay ahead in an ever-changing digital landscape [20].

2.3 Flexibility of Fintech Management

Flexibility can be described as adjusting swiftly to changes or environmental modifications, such as variations in market conditions and customer demands. For currency pairs exchange businesses, versatility is critical for responding to unforeseen market AM or regulatory shifts [21]. Fintech systems driven by Artificial Intelligence (AI) are ingenious, enabling organizations to realign their operational strategies, resources, and manpower automatically. In fintech, AI-based systems can also compare the different market variations, predict possible results, and propose flexible solutions to enhance performance within the scope of consumer satisfaction [22]. Additionally, AI allows currency exchange businesses to create more flexible sourcing strategies, enabling them to quickly switch suppliers or recalibrate financial models in game plans to reduce risk from market disruptions[23]. Being agile is essential for stability and progress within a turbulent fiscal environment; it helps currency exchange staff in Jordan remain ducked-up and fitted to meet evolving requirements without interruptions[24].

2.4 Fintech Management and Technological Development

The art of managing fintech in the digital world has been the bedrock of modern business expansion due to technological innovations such as Artificial Intelligence (AI), the Internet of Things (IoT), and Blockchain [25]. These digital technologies have revolutionized the operations of the currency exchange business by offering robust means of tracking transactions, tracing the flow of currencies, and cooperating with business partners across the financial ecosystem [26]. Fintech systems can use next-generation software and analytics tools to manage data flow inputs more effectively, optimizing logistical processes and improving efficiency across the business. China: AI stands out as a transformative driver of the digitalization of currency exchange operations, facilitating predictive analytics, improving decision-making, and performing routine banking tasks like transaction monitoring and fraud detection [27]. The convergence of traditional finance and technology has become an increasingly important line of business for currency exchange companies in Jordan to achieve competitiveness and operation excellence in a fast digitizing financial sector as these technologies evolve [28].

2.5 The Application of AI in Fintech Hub Manager

Fintech powered by artificial intelligence (AI), the technology behind the automation of processes, analysis of large amounts of data, and improved decision-making, has become a

paradigm shift for the industry, specifically in currency exchange that was once a hefty task [29]. In the currency exchange industry, AI-powered tools sift through various data from different sources and help businesses uncover operational inefficiencies, rediscover currency demand fluctuations, and optimize transaction management [30]. AI brings the most impactful value proposition to the fintech space through predictability, helping currency exchange businesses anticipate their customers, market behavior, and potential disruptions [31]. Because of this predictive ability, companies can make more data-driven decisions around exchange rates, risk management, and customer service [32]. Moreover, AI enhances the collaboration between stakeholders within the financial ecosystem, including payment processors, banks, and their customers, allowing transactions to flow more seamlessly through the financial world and minimizing delays [33]. Automated systems powered by machine learning, like fraud detection tools and AI-based customer service agents, augmented the ability to exchange money and helped to minimize human error, speeding up decision-making processes and improving productivity [34]. Furthermore, AI is still an essential driver of improved efficiency, adaptability, and agility in Fintech designs, facilitating the continued digitalization of currency exchange methods [35].

Hypothesis Development

Adaptability → Artificial Intelligence

The organization embracing AI in the Exchange industry is well coordinated and thus, a successful endeavor provided everyone accepts the new change [36]. With the rapid advancements in AI technologies, currency exchange firms in Jordan are constantly preparing and adapting AI systems that augment their current technologies and enhance workforce efficacy [37]. Highly agile organizations are imbued with industrial agility, enabling the effortless incorporation of AI-driven automation, predictive analytics, and rich applications of machine learning into their operations, which will jointly equip them to outpace competitors, effectively respond to quick shifts in market conditions, and maximize the full value of AI in driving decision-making, operational excellence, and innovation [38]. Remember that AI can be integrated within agile fintech organizations, so the process should be evolutionary, minimizing friction and allowing for business adaptations for dynamic financial markets and regulatory environments [39]. This versatility provides exchange companies to forge a successful path within a competitive and virtual business environment [40]. On this basis, the following hypotheses are formulated:

H1: Higher adaptability fosters the effective implementation and utilization of artificial intelligence.

Adaptability → Fintech

An agile, flexible, and resilient Fintech platform is necessary in an ever-changing business landscape. In terms of fintech, new technologies like artificial intelligence (AI), blockchain, and cloud computing significantly increase the efficiency of information, which compels the foreign exchange industry to closely follow up on the newest tools and strategies. Currency exchange businesses that practice agility can quickly (re)embrace digitization, modify their business processes, and react to market conditions, regulatory changes, or unexpected crises. Thereupon, cultivating a culture of flexibility among these companies acts as a way to enable them to be responsive, optimize their operational efficiencies, and retain their competitiveness. In a continuously changing and intense market, the ability to quickly and freely adapt is needed to succeed in the digital finance environment, where rapid decision-making and seamless practices are essential components of success. On this basis, the following hypotheses are formulated:

H2: Increased adaptability enhances the efficiency and effectiveness of fintech

Artificial Intelligence → Fintech

AI streamlines workflows, decreases decision-making time, and raises efficiency levels within digital frameworks for the financial technology industry, especially the currency exchange sector. Powered by Panera's never-ending demand forecast data, AI-based predictive analytics allow companies to create actionable insights on demand forecasts, detect operational bottlenecks, and take measures to avoid possible calamities before they explode. With the potential to process vast

amounts of data, AI-enabled automation allows transaction management, customer service modeling, and financial reporting to be rendered automatic, reducing human error and making them cheaper to operate. AI-based real-time data analysis allows for pragmatic and precise decision-making in currency exchange operations. Therefore, currency exchange platforms that adopt AI technology within their systems gain dynamic functionality, cost-efficiency, and robustness against market uncertainties, keeping them ahead in a fast-paced fiscal world. **On this basis, the following hypotheses are formulated:**

H3: The integration of artificial intelligence significantly improves fintech.

3.4 Efficiency → Artificial Intelligence

Jordan's currency exchange businesses have integrated artificial intelligence (AI) into their systems to reduce resource waste and enhance operational efficiency by streamlining workflows and boosting productivity. AI technologies such as machine learning are just some of these technologies that can take over repetitive tasks, giving human resources more time to engage in decision-making. Currency exchange businesses with outlooks based extensively on process have ushered in AI-fueled progressions with data-driven advancements exhibiting significant increases in performance metrics, lower transaction processing times, decreased costs, and accuracy in currency transactions of a quality that is verging on elevated. Moreover, more well-established corporations are better positioned to successfully deploy AI, allowing them to improve their processes and enhance their operations seamlessly, paving the road for a more data-driven organization.

On this basis, the following hypotheses are formulated:

H4: Greater operational efficiency drives the adoption and optimization of artificial intelligence technologies.

Efficiency → Fintech

Operations are more efficient and reduce wasteful resources. Currency exchange companies in Jordan have added artificial intelligence (AI) to their systems, allowing them to remain competitive while improving operations, efficiency, and workplace productivity. One of the plethora of AI technologies that enable automation of mundane tasks and thereby create opportunities for individuals to devote more energy toward strategic decision-making is machine learning. AI-driven innovations that are statistically validated to improve performance metrics, tighten transaction processing times, generate cost savings, and boost accuracy in currency transactions are being deployed across process-oriented incoming exchange businesses. On the other hand, well-established enterprises have the advantage of already functioning systems, allowing them to roll out AI solutions sooner, optimize processes, and scale their operations with the least disruption, resulting in a seamless transition to more efficient, data-driven systems. On this basis, the following hypotheses are formulated:

H5: Improved efficiency leads to enhanced Fintech capabilities.

Flexibility → Artificial Intelligence

As there is much more flexibility in the processes of the currency exchange industry, businesses can try different AI solutions and optimize their AI usage based on real-time data and client feedback. In cultivating a flexible culture, currency exchange companies will possess the capacity to quickly embrace AI-powered automation, data analytics, and supporting systems for decision-making. Such agility enables organizations to maximize the value of the AI-powered embedded intelligence, enabling seamless transformation and sustainable value realization beyond core functions like transaction management and customer engagement to risk mitigation and other business areas. This adaptability will enable those businesses to fine-tune how they do business, their effect on changing market dynamics, and sustain improvement across their operations. **On this basis, the following hypotheses are formulated:**

H6: Organizational flexibility facilitates the seamless integration and adaptation of artificial intelligence solutions

3.7 Flexibility → Fintech

Flexibility plays a significant role in the success of any business. However, the digital transformation of the Exchange Industry relies on this more than ever. By breaking silos across the board and leveraging shared systems, real-time data, and emerging technologies AI, IoT, currency exchange companies can improve their operational agility. Agile organizations can respond quickly to changing demand, shifts in customer behavior, technology upgrades, and other market disruptions. Organizations mastering digital transformation and dealing with the paradox of flexibility are in a much better position to reconfigure their relationship with the customer and transactions and improve overall operational resilience. Such flexibility allows currency exchange businesses to stay relevant and become nimble in the market, responding increasingly to ever-changing market dynamics and customer expectations. **On this basis, the following hypotheses are formulated:**

H7: Greater flexibility enables the effective implementation and management of Fintech

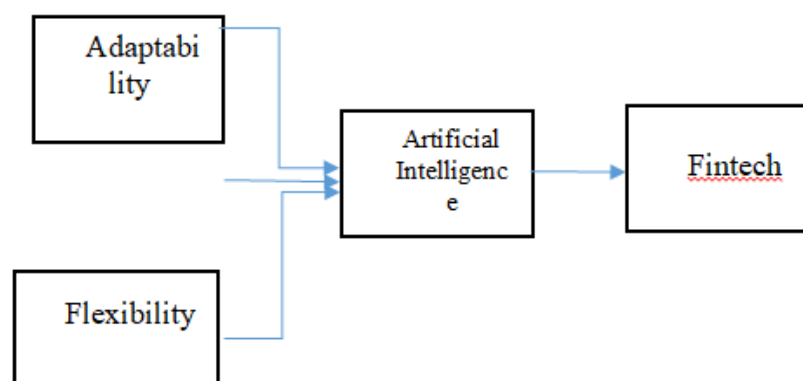


Figure 1: Conceptual model

RESEARCH METHODOLOGY

This study uses a mixed-methods methodology, utilizing both quantitative and qualitative methods [41], to investigate the channeling effect of technological advances, emphasizing AI, on the digitalization of Fintech in the currency exchange sector. The background data conveys the professionals' assessment, adopted and applied digital and AI solutions in their Fintech fields within the scope of their respective industries. Results: SEM analyzes the interactions among technological innovations, AI, and S network performance, extending the methodology through sophisticated analysis. SEM can be applied to assess the correlations among (a) technological innovations and (b) AI [42]. In-depth interviews with currency exchange managers allowed for a further understanding of the challenges and benefits of using AI as a mediator in optimizing operational efficiency and decision-making processes [43]. This mixed-methods approach provides a broader insight into the impact of AI-driven technologies in the flexibilities, responsiveness, and overall performance of Fintech in the Exchange industry in Jordan [44].

Data Analysis

The Smart PLS 4 tool [45] was used to analyze data in this study. This tool is predominantly used in business research to investigate complex relationships between constructs and data. This approach is especially beneficial for investigating smaller sample sizes, common in studies focusing on digital transformation, AI technologies, and non-normally distributed datasets. Moreover, the paper leverages theoretical modelling to test the connections between several business intelligence variables of the currency exchange industry, integrating digital transformation as a mediator with AI technologies as a core element to develop better Fintech effectiveness and resilience. Two comparative analytical steps were used in this research: the first was to evaluate the independent impact of each factor, and the second was to analyze by integrating these factors into Smart PLS to analyze the correlation between them [46]. This

framework is essential for examining the compelling motivation behind how digital transformation and AI impact the currency exchange field and the Jordanian economy from a technological integration perspective. The findings suggest that AI, as an integrative technology, will significantly impact fintech, sustainability, and performance in the industry [47].

Table 1. Factor Loadings

Constructs	Items	Factor loadings	Cronbach's Alpha	C.R.	(AVE)
Adaptability	ADA1	0.825	0.894	0.896	0.922
	ADA2	0.868			
	ADA4	0.839			
	ADA5	0.814			
	ADAC3	0.846			
Artificial Intelligence	AI1	0.729	0.869	0.87	0.906
	AI2	0.828			
	AI3	0.813			
	AI4	0.819			
	AI5	0.861			
Fintech	FIN1	0.823	0.852	0.879	0.892
	FIN2	0.815			
	FIN3	0.762			
	FIN4	0.794			
	FIN5	0.749			
Efficiency	EFF1	0.876	0.894	0.898	0.922
	EFF2	0.819			
	EFF3	0.841			
	EFF4	0.792			
	EFF5	0.86			
Flexibility	FLE1	0.823	0.87	0.873	0.911
	FLE2	0.815			
	FLE3	0.762			
	FLE4	0.794			

Table 1: Factor Loadings and Reliability Measures for Various Constructs: Adaptability, Artificial Intelligence (AI), Fintech (FIN), Efficiency, & Flexibility. Multiple items in each construct had good factor loadings, reflecting constructs with well-defined relationships to the given items. The reported Cronbach's Alpha values were high for all types of attitudes, indicating internal consistency reflecting these constructs' reliability. Convergent validity was satisfactory thanks to the Composite Reliability (C.R.) and Average Variance Extracted (AVE) values, supporting both internal consistency of constructs and reflecting a part-to-total variance relation among the measures.

Table 2. HTMT

	Adaptability	Artificial Intelligence	Fintech	Efficiency	Flexibility
Adaptability					
Artificial Intelligence	0.545				
Fintech	0.458	0.412			
Efficiency	0.651	0.576	0.639		
Flexibility	0.575	0.606	0.699	0.793	

Table 2: The individual HTMT values presented are distinctly lower than the commonly accepted threshold; discriminant validity may be acceptable. That is, constructs are indeed different from one another, where each measures something relatively unique about the concept and does not significantly overlap.

Table 3. Fronell-Larcker

	Adaptability	Artificial Intelligence	Fintech	Efficiency	Flexibility
Adaptability	0.838				
Artificial Intelligence	0.483	0.811			
Fintech	0.388	0.371	0.789		
Efficiency	0.585	0.511	0.541	0.838	
Flexibility	0.516	0.532	0.587	0.707	0.848

Table 3: Discriminant validity can be assessed using the Fornell-Larcker Criterion to see how separate the constructs are. The diagonal values in the table are the square roots of the Average Variance Extracted (AVE) for the respective construct, and the off-diagonal values represent inter-construct correlations. As can be seen in the results, all diagonal values exceed any off-diagonal correlations, indicating that all constructs account for more variance with themselves than any other construct. This finding establishes that the constructs, namely Adaptability, Artificial Intelligence, Fintech, Efficiency, Logistics, and Flexibility, are different enough from each other. As a result, good discriminant validity is supported; the constructs are not overly correlated, and each is tapping different aspects of the data.

Table 4: R2 Adjusted

Variable	R2	R2 Adjusted
Artificial Intelligence	0.354	0.347
Fintech	0.138	0.134

Table 4 R^2 and R^2 Adjusted for Artificial Intelligence and Fintech. The R^2 values denote the amount of variance accounted for by the predictors in the model. In terms of R^2 value for Artificial Intelligence, the R squared is moderate, implying that the independent variables of the model account for considerable variance in AI. The R^2 value of 0.731682 signals that the predictors explain 73.17% of the variance in Fintech. The R^2 Adjusted reflect the number of predictors in the model and indicates the goodness of fit, which adjusts for model complexity relative to explained variance. These adjusted values are marginally lower than the original R^2 values, but the difference is insignificant. This means that even without the other predictors in the model, artificial intelligence and fintech explain most of the variation explained by the model with few deductions just for the complexity of the model (meaning that the fit was adequate).

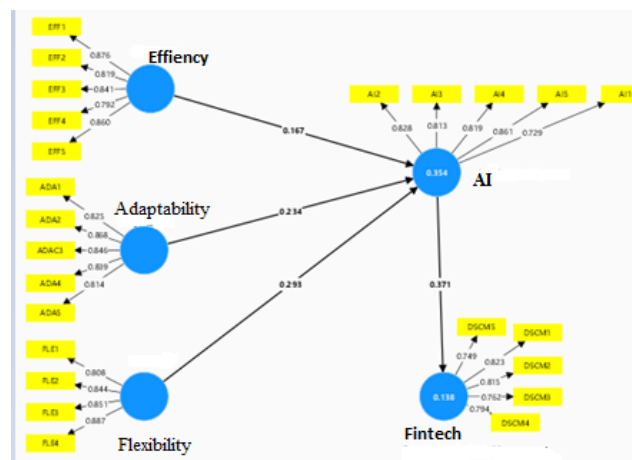


Figure1. Measurement Model

Table 5. Hypotheses Testing Estimates (Total effect)

Hypo	Relationships	Beta	ST error	T statistics	P values	Decision
------	---------------	------	----------	--------------	----------	----------

H1	Adaptability Artificial Intelligence ->	0.234	0.069	3.373	0.001	Supported
H2	Adaptability >Fintech -	0.087	0.032	2.75	0.006	Supported
H3	Artificial Intelligence >Fintech -	0.371	0.086	4.291	0	Supported
H4	Efficiency Artificial Intelligence ->	0.167	0.081	2.058	0.04	Supported
H5	Efficiency >Fintech -	0.062	0.036	1.71	0.087	Unsupported
H6	Flexibility Artificial Intelligence ->	0.293	0.083	3.529	0	Supported
H7	Flexibility >Fintech -	0.109	0.044	2.456	0.014	Supported

Table 5: Hypothesis testing Standardized beta coefficients, standard errors (in parentheses), t-values, and p-values for the relationships among the constructs are reported in Table 5. Most proposed relationships were supported, with several significant interrelationships among essential variables. The findings show a considerable positive relationship between artificial intelligence and fintech, showing the relevance of AI in increasing efficiency, adaptability, and innovation within the industry. Likewise, flexibility is vital in underwriting, implying that more adaptable financial institutions would be better suited to embrace AI-powered solutions. Efficiency is a more significant driver of using AI in Fintech than other aspects of adopting financial technology. These findings imply that though AI-powered solutions might substantially impact performance, decision-making, and automation, their direct influence on further operational aspects could be limited by the context of the industry itself. These results support the narrative that AI is a transformational force in Fintech, enabling superior adaptability and efficiency and seamlessly integrating with agile financial infrastructure.

Table 6. Hypotheses Testing Estimates (Indirect effect)

Hypo	Relationships	Standardized Beta	Standard Error	T statistics	P values	Decision
H8	Adaptability ->Fintech	0.087	0.032	2.75	0.006	Supported
H9	Efficiency ->Fintech	0.062	0.036	1.71	0.087	Unsupported
H10	Flexibility ->Fintech	0.109	0.044	2.456	0.014	Supported

The estimates for indirect effects between constructs and the results of hypothesis testing are shown in Table 6. As demonstrated, adaptability indirectly affects Fintech performance with a positive standardized beta coefficient and a statistically significant p-value (0.05). This suggests that even though AI boosts financial efficiency, it does not directly lead to adopting Fintech unless there is addictiveness and flexibility. All in all, these results underscore that adaptability and flexibility act as the key mediators between AI and the growth of Fintech. At the same time, efficiency does not play a significant role in accepting AI-based financial innovations.

7. FINDINGS

7.1 Discussion

The research represents a comprehensive literature review of the academic literature on Fintech technological innovations, specifically focusing on the mediating role of artificial intelligence (AI) in authenticating financial services in Jordan's currency exchange business. The results reveal impressive trends within the industry, particularly the revolutionary role that artificial intelligence will play in streamlining financial operations, improving predictive analytics, and enhancing decision-making processes within the Fintech space. Fintech innovations are thus multifactorial phenomena that highlight the interplay between technological, regulatory, and financial factors that influence the particularities of industry practices. However, key barriers to the widespread adoption of AI in healthcare are interoperability, complexity, regulatory compliance, and cybersecurity risks. These are examples of research gaps to be filled; advocating research on AI enables Fintech. With Fintech's ceaseless evolution in AI, blockchain, and machine learning, there is considerable opportunity for investigating these technologies as solutions for optimized transaction speed, fraud detection, and personalized financial services. This study provides valuable contributions to knowledge on the impact of digital transformation, technology innovations, and sustainable finance policies on the Fintech sector revolutionaries and resilience. Aspects of the study provide the basis for future research and for financial professionals to build upon the insights for innovations, efficiency, and strategic evolution within the landscape of an ever increasingly digital and volatile financial ecosystem.

7.2 Theoretical Implications

By providing insights into AI's mediating ability to advance financial services, this research adds to the existing knowledge on the relationship between AI, Fintech digitalization, and better operational financial performance. In line with the Technology-Organization-Environment (TOE) framework, the results indicate that adopting AI in the Fintech industry is associated with competitive benefits such as higher financial flexibility, risk mitigation, and lower operations expenditure. Furthermore, the study underlined that AI could transform Jordan's financial services ecosystem in conjunction with other disruptive technologies, including machine learning and blockchain. This also helps to promote more efficiency with transactions, fraud detection, credit risk analysis, and personalized customer offerings, resulting in a more resistant and adaptive financial sector that balances creativity with sustainable growth over time.

7.3 Managerial Implications

The results give practical directions for the service providers and Fintech managers who wish to incorporate AI technologies to enhance their operations and decision-making processes. To meet increasing consumer demands and emerging market trends, financial institutions have begun implementing AI-supported solutions such as predictive analytics, fraud detection systems, and automated risk assessment tools. And since AI is key to promoting financial inclusion and minimizing environmental footprint, for all, reducing paper and power consumption for data processing, its Fintech strategies should also make sustainability a primary concern. AI represents much more than merely a technology to managers or policymakers; it has the potential to be the glue that aligns financial outcomes with customer experience and electrifies sustainable financial behavior. By enabling AI-powered innovation, Fintech companies in Jordan can enhance their market position, increase regulatory compliance, and drive financial sustainability.

7.4 Limitations and Further Research

The study presents an insightful understanding regarding the role of artificial intelligence (AI) in supporting fintech, in which sustainable innovation mediates its effect on AI and the currency exchange field of Jordan. Nevertheless, several limitations need to be recognized. First, although this study concentrates on fintech and currency exchange, its outcomes may not be relevant to all financial sectors, like banking, insurance, or investment services. Further investigation is needed to determine whether the same AI-powered transformations are seen in other fintech segments and the extent to which sustainable innovation serves similar intermediary functions in different areas of financial services. Second, even if the research suggests sustainable innovation as a driver of AI uptake, other organizational and technological factors, such as regulatory frameworks, preparedness for cybersecurity, and the pressures of market competition, could affect the efficacy of AI in fintech. Further studies should include these components to offer a more holistic view of

how AI drives fintech efficiency and innovation. Moreover, efficiency was found not to play a significant role in the effect of AI's role in fintech, countering some of the existent literature. Further study is warranted to examine whether other fintech business models or regulatory environments drive this association. Additionally, this study demonstrated that flexibility and adaptability positively influence AI adoption and fintech performance in Jordan's currency exchange industry. However, these relationships may not hold across the board. Cross-national or cross-market studies might show whether what drives fintech transformation in one market or country is replicated in another. A longitudinal research design would also offer richer and more nuanced insights into how AI-powered fintech offerings evolve over time, particularly in light of regulatory developments, changing technology, and shifting consumer behavior. Forthcoming studies may investigate how external factors, such as regulatory authorities, fintech companies, incumbent financial institutions, and customers affect the interrelations between AI, sustainable innovation, and fintech performance. Researching the organizational approaches to AI-powered innovation can show how fintech companies may leverage AI to create more sophisticated financial transactions, increased security, and operational efficiencies. Moreover, the study's determination that efficiency hardly affects AI's position in fintech indicates that other factors in the system, for instance, user experience, trust, and adherence to regulation, may be more influential. Future research could also employ other performance measures, such as transaction speed, fraud detection, and customer satisfaction, to assess AI's impact more fully on fintech. Future research in this area should address these limitations and investigate the interaction between AI and other sustainable innovations, the effect of regulatory environments and tech advances on AI usage in fintech, and the implications for growth, efficiency, and resilience in the currency exchange sector.

7.5 Research Implications

These findings contribute to the existing research on using AI in the fintech industry to optimize operations in the context of currency trading. Future studies may also consider the potential sustainability impacts of AI-driven financial technologies, including their ability to optimize capital allocation or reduce financial inclusion gaps via decreased transaction costs. At the same time, you could assess how these technologies are standardized and adaptable among different fintech sectors like digital payments, lending, or blockchain-based transactions. Furthermore, this study emphasizes the importance of investigating complementary mediating variables, such as compliance with regulatory requirements, cybersecurity frameworks, and consumer trust, to mitigate risk and fully harness the transformative potential of AI in fintech. This can help determine the development of AI systems that meet the needs of currency exchange, considering the changing market and the necessary high level of security, transparency, and efficiency required in today's currency market. Future research should provide a broader range of AI implementations and their long-term implications to facilitate a more detailed quantity of information about the effects of AI in shaping the future of fintech in Jordan and elsewhere.

REFERENCES:

- [1] M. Alghizzawi *et al.*, "The Big Data Analysis and Digital Marketing," in *Opportunities and Risks in AI for Business Development: Volume 2*, Springer, 2024, pp. 1–10.
- [2] N. Al-Ramahi, F. M. Kreishan, Z. Hussain, A. Khan, M. Alghizzawi, and B. M. AlWadi, "Unlocking Sustainable Growth: The Role of Artificial Intelligence Adoption in Jordan Retail Sector, Moderated by Entrepreneurial Orientation," *Int. Rev. Manag. Mark.*, vol. 14, no. 6, pp. 143–155, 2024.
- [3] V. Aravamudhan *et al.*, "The Impact of Digital Marketing on Electronic Businesses from a Supply Chain Perspective," 2024.
- [4] B. J. A. Ali, "Integration of Supply Chains and Operational Performance : The Moderating Effects of Knowledge Management Integration of Supply Chains and Operational Performance : The Moderating Effects of Knowledge Management," vol. 11, no. 4, 2022.
- [5] H. A. Salhab, M. Allahham, I. A. Abu-Alsondos, R. H. Frangieh, A. F. Alkhwalidi, and B. J. A. Ali, "Inventory competition, artificial intelligence, and quality improvement decisions in supply chains with digital marketing," *Uncertain Supply Chain Manag.*, vol. 11, no. 4, pp. 1915–1924, 2023, doi: 10.5267/j.uscm.2023.8.009.

- [6] S. U. Rehman *et al.*, "FinTech adoption in SMEs and bank credit supplies: A study on manufacturing SMEs," *Economies*, vol. 11, no. 8, p. 213, 2023.
- [7] M. K. Daoud, S. Taha, M. Al-Qeed, Y. Alsafadi, A. Y. A. Bani Ahmad, and M. Allahham, "EcoConnect: Guiding environmental awareness via digital marketing approaches," 2024.
- [8] H. Hatamlah, M. Allan, I. Abu-Alsondos, M. Shehadeh, and M. Allahham, "The role of artificial intelligence in supply chain analytics during the pandemic," *Uncertain Supply Chain Manag.*, vol. 11, no. 3, pp. 1175–1186, 2023, doi: 10.5267/j.uscm.2023.4.005.
- [9] H. Hatamlah, M. Allahham, I. A. Abu-AlSondos, A. Al-junaidi, G. M. Al-Anati, and M. Al-Shaikh, "The Role of Business Intelligence adoption as a Mediator of Big Data Analytics in the Management of Outsourced Reverse Supply Chain Operations," *Appl. Math. Inf. Sci.*, vol. 17, no. 5, pp. 897–903, 2023, doi: 10.18576/AMIS/170516.
- [10] H. Hatamlah *et al.*, "Assessing the moderating effect of innovation on the relationship between information technology and supply chain management: an empirical examination," *Appl. Math. Inf. Sci.*, vol. 17, no. 5, pp. 889–895, 2023.
- [11] O. Jawabreh *et al.*, "The Influence of Fintech Strategies on Organizational Performance in Hospitality Industry," *Appl. Math. Inf. Sci.*, vol. 17, no. 5, pp. 851–858, 2023, doi: 10.18576/AMIS/170511.
- [12] E. Almustafa, A. Assaf, and M. Allahham, "Implementation of Artificial Intelligence for Financial Process Innovation of Commercial Banks," *RGSA – Rev. Gestão Soc. e Ambient.*, vol. 17, no. 9, pp. 1–17, 2023.
- [13] M. Allahham and A. Y. B. Ahmad, "AI-induced anxiety in the assessment of factors influencing the adoption of mobile payment services in supply chain firms: A mental accounting perspective," *Int. J. Data Netw. Sci.*, vol. 8, no. 1, pp. 505–514, 2024, doi: 10.5267/j.ijdns.2023.9.006.
- [14] M. Allahham, A. A. A. Sharabati, M. Al-Sager, S. Sabra, L. Awartani, and A. S. L. Khraim, "Supply chain risks in the age of big data and artificial intelligence: The role of risk alert tools and managerial apprehensions," *Uncertain Supply Chain Manag.*, vol. 12, no. 1, pp. 399–406, 2024, doi: 10.5267/j.uscm.2023.9.012.
- [15] M. Allahham, A. A. A. Sharabati, H. Hatamlah, A. Y. B. Ahmad, S. Sabra, and M. K. Daoud, "Big Data Analytics and AI for Green Supply Chain Integration and Sustainability in Hospitals," *WSEAS Trans. Environ. Dev.*, vol. 19, pp. 1218–1230, 2023, doi: 10.37394/232015.2023.19.111.
- [16] A. Alkhazaleh, A. Assaf, M. Shehada, E. Almustafa, and M. Allahham, "Analysis of the Impact of Fintech Firms' Lending on the Expansion of Service Base Companies in Jordan," *Inf. Sci. Lett.*, vol. 12, no. 8, pp. 2891–2902, 2023, doi: 10.18576/ISL/120837.
- [17] A. A. Atieh Ali, A. A. A. Sharabati, M. Allahham, and A. Y. Nasereddin, "The Relationship between Supply Chain Resilience and Digital Supply Chain and the Impact on Sustainability: Supply Chain Dynamism as a Moderator," *Sustain.*, vol. 16, no. 7, pp. 1–20, 2024, doi: 10.3390/su16073082.
- [18] H. Shehadeh, A. Shajrawi, M. Zoubi, and M. Daoud, "The mediating role of ICT on the impact of Fintech (SCM) on organizational performance (OP): A field study in Pharmaceutical Companies in Jordan," *Uncertain Supply Chain Manag.*, vol. 12, no. 2, pp. 1251–1266, 2024, doi: 10.5267/j.uscm.2023.11.011.
- [19] A. M. S. Alrjoub, S. N. Almomani, A. A. Al-Hosban, and M. I. Allahham, "The Impact of Financial Performance on Earnings Management Practice Behavior (an Empirical Study on Financial Companies in Jordan)," *Acad. Strateg. Manag. J.*, vol. 20, no. Special Issue 2, pp. 1–15, 2021.
- [20] A. A. Sharabati *et al.*, "Effects of Artificial Inegration and Big Data Analysis on Economic Viability of Solar Microgrids_Mediating Role of Cost Benefit Analysis," *Operational Research in Engineering Sciences: Theory and Applications*, Vol. 6, no.. 3, 2023.
- [21] M. Allahham, A. A. A. Sharabati, L. Almazaydeh, Q. M. Sha-Latony, R. H. Frangieh, and G. M. Al-Anati, "The impact of fintech-based eco-friendly incentives in improving sustainable environmental performance: A mediating-moderating model," *Int. J. Data Netw. Sci.*, vol. 8, no. 1, pp. 415–430, 2024, doi: 10.5267/j.ijdns.2023.9.013.
- [22] A. A. Atieh Ali, A. A. Sharabati, D. R. Alqurashi, A. S. Shkeer, and M. Allahham, "The impact of artificial intelligence and supply chain collaboration on supply chain resilience:

- Mediating the effects of information sharing," *Uncertain Supply Chain Manag.*, vol. 12, pp. 1801–1812, 2024, doi: 10.5267/j.uscm.2024.3.002.
- [23] M. Alghizzawi, F. Omeish, T. Abdrabbo, A. Alamro, A. Al Htibat, and M. A. Ghani, "Future Trends of Smartphone Application Intention to Use: Expansion of the Technology Acceptance Model," *Int. J. Interact. Mob. Technol.*, vol. 18, no. 20, 2024.
- [24] A. A. A. Sharabati, H. Z. Awawdeh, S. Sabra, H. K. Shehadeh, M. Allahham, and A. Ali, "The role of artificial intelligence on digital supply chain in industrial companies mediating effect of operational efficiency," *Uncertain Supply Chain Manag.*, vol. 12, no. 3, pp. 1867–1878, 2024, doi: 10.5267/j.uscm.2024.2.016.
- [25] M. K. Daoud, A. A. Sharabati, T. Samarah, D. Alqurashi, and A. Alfityani, "Optimizing online visibility : A comprehensive study on effective SEO strategies and their impact on website ranking," vol. 8, no. 7, 2024.
- [26] A. A. A. Sharabati, S. U. Rehman, M. H. Malik, S. Sabra, M. Al-Sager, and M. Allahham, "Is AI biased? evidence from FinTech-based innovation in Fintech companies?" *Int. J. Data Netw. Sci.*, vol. 8, no. 3, pp. 1839–1852, 2024, doi: 10.5267/j.ijdns.2024.2.005.
- [27] A. A. B. Atta, A. Y. A. B. Ahmad, M. I. Allahham, D. R. Sisodia, R. R. Singh, and U. H. Maginmani, "Application of Machine Learning and Blockchain Technology in Improving Supply Chain Financial Risk Management," *Proc. Int. Conf. Contemp. Comput. Informatics, IC3I 2023*, pp. 2199–2205, 2023, doi: 10.1109/IC3I59117.2023.10397935.
- [28] A. Q. Bataineh, I. Abu-Alsondos, H. A. Salhab, and L. S. Al-Abbas, "A structural equation model for analyzing the relationship between enterprise resource planning and Fintech," *Uncertain Supply Chain Manag.*, vol. 10, no. 4, pp. 1289–1296, 2022, doi: 10.5267/j.uscm.2022.7.011.
- [29] A. Sahioun, A. Q. Bataineh, I. A. Abu-AlSondos, and H. Haddad, "The impact of green marketing on consumers' attitudes: A moderating role of green product awareness," *Innov. Mark.*, vol. 19, no. 3, p. 237, 2023.
- [30] A. Q. Bataineh, I. A. Abu-AlSondos, M. Idris, A. S. Mushtaha, and D. M. Qasim, "The Role of Big Data Analytics in Driving Innovation in Digital Marketing," in *2023 9th International Conference on Optimization and Applications (ICOA)*, 2023, pp. 1–5.
- [31] B. Fridhi, "The impact of digital marketing on the performance of firms in Tunisia," *Appl. Mark. Anal.*, vol. 8, no. 2, pp. 192–205, 2022, doi: 10.69554/osmk7754.
- [32] I. A. A. AlSondos, A. A. M. Salameh, and M. Engineer, "Organizing Event Ubiquitous with a Proposed Event Mobile Application in Bahrain," *Int. J. Manag.*, vol. 11, no. 6, 2020.
- [33] I. A. Abu AlSondos and A. A. M. Salameh, "The effect of system quality and service quality toward using m-commerce service, based on consumer perspective," *Manag. Sci. Lett.*, vol. 10, no. 11, pp. 2489–2496, 2020, doi: 10.5267/j.msl.2020.3.035.
- [34] A. Zamil, I. Abu-AlSondos, and A. Salameh, "Encouraging consumers to make online purchases using mobile applications, How to keep them in touch with e-services providers?," 2020.
- [35] A. A. Salameh, I. A. Abu-AlSondos, N. H. Abu, and A. N. Harun, "Current Knowledge and Future Possibilities of Medical Digital Technologies based on Mobile Health," *Int. J. Interact. Mob. Technol.*, vol. 17, no. 17, 2023.
- [36] L. A. Khader, T. World, I. Science, and A. D. Bashatweh, "The Integrative Relationship Between Traditional and Modern Performance Measures: An Applied Study on Commercial Banks Listed in Amman Stock Exchange," *Academy of Accounting and Financial Studies Journal*, no. May 2021.
- [37] A. D. Bashatweh *et al.*, "Does Environmental, Social, and Governance (ESG) Disclosure Add Firm Value ? Evidence from Sharia-Compliant Banks in Jordan: Does Environmental, Social, and Governance (ESG) Disclosure Add Firm Value ? Evidence from Sharia-Compliant Banks in Jordan," no. July 2022, 2023, doi: 10.1007/978-3-031-08084-5.
- [38] H. Alhanatleh, M. Alghizzawi, Z. Alhawamdeh, B. Alkhlaifat, Z. Alabaddi, and O. Al-Kasasbeh, "Public value of using fintech services' mobile applications: Citizens' perspective in a Jordan setting," *Uncertain Supply Chain Manag.*, vol. 12, no. 2, pp. 1317–1330, 2024.
- [39] I. L. Mukattash, M. Alghizzawi, T. A. Hmeidan, M. K. Alrousan, M. Al Khasawneh, and J. A. Al-Gasawneh, "Consumer perception towards electric cars, an inductive study with

- specific reference to the Jordanian market," *J. Infrastructure, Policy Dev.*, vol. 8, no. 8, p. 4690, 2024.
- [40] D. R. Alqurashi, M. Alghizzawi, and A. Al-Hadrami, "The Role of Social Media in Raising Awareness of Cybersecurity Risks," in *Opportunities and Risks in AI for Business Development: Volume 1*, Springer, 2024, pp. 365–376.
 - [41] M. Alghizzawi, E. Ahmed, I. Ezmigna, A. A. R. Ezmigna, and F. Omeish, "The Relationship Between Artificial Intelligence and Digital Marketing in Business Companies," in *The AI Revolution: Driving Business Innovation and Research: Volume 2*, Springer, 2024, pp. 885–895.
 - [42] "Design and energy, exergy, thermoeconomic, and exergo-environmental (4E) analyses of a novel hybrid geothermal/biogas-powered green multi-generation system using a post-combustion CO₂ capture unit," p. 124662, 2025.
 - [43] M. A. L. Al Mawahreh, H. Z. Awawdeh, A. Y. A. Bani Ahmad, W. I. Almajali, A. A. A. Ali, and M. Allahham, "How Does Digital Marketing Influence Consumer Behavior? Examining the Mediating Role of Digital Entrepreneurship in the Healthcare and Pharmaceuticals Sector," *Libr. Prog. Int.*, vol. 44, no. 3, pp. 5858–5877, 2024.
 - [44] H. Z. Awawdeh, M. A. L. Al Mawahreh, M. Allahham, W. I. Almajali, A. A. A. Ali, and A. Y. A. Bani Ahmad, "The Impact of Digital Marketing on Building Consumer Confidence the Role Mediating of Information sharing and AI: An Empirical Study of the Telecommunications Sector in Jordan," *Libr. Prog. Int.*, vol. 44, no. 3, pp. 5844–5857, 2024.
 - [45] A. A. Sharabati *et al.*, "The Impact of Digital Marketing on the Performance of SMEs : An Analytical Study in Light of Modern Digital Transformations," pp. 1–25, 2024.
 - [46] M. Alghizzawi, Y. Megdadi, B. M. AlWadi, I. Zahran, and Z. Megdad, "The Impact of Digital Marketing on Customer Interaction: Electronic Fashion Sales Stores," in *Artificial Intelligence (AI) and Customer Social Responsibility (CSR)*, Springer, 2024, pp. 569–579.
 - [47] F. Alnaser, S. Rahi, M. Alghizzawi, and A. H. Ngah, "An integrative research framework to investigate factors influencing citizens' intention to adopt e-health applications: post-COVID-19 perspective," *Glob. Knowledge, Mem. Commun.*, 2024.