



ARTIFICIAL INTELLIGENCE AND FINTECH INNOVATION IN EMERGING MARKETS: THE ROLE OF DIGITAL FINANCIAL CAPABILITIES AND CUSTOMER TRUST

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DOI: <https://doi.org/10.63544/jbii.v5i10.240>

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Article History:

Received: 30.08.2026

Accepted: 20.09.2026

Published: 02.10.2026

Abstract

This paper investigates the role of Artificial Intelligence (AI), Digital Financial Capabilities (DFC) and Customer Trust in digital FinTech Innovation in emerging markets. The statistical research design used was quantitative, cross-sectional, and a questionnaire with five-point Likert scales was used for the collection of data, reaching 300 adult FinTech users. Intelligent automation, predictive analytics, personalized financial services, fraud detection and AI powered decision-support were used to evaluate the impact of AI. The impact of AI was evaluated using the following trends: intelligent automation, predictive analytics, personalized financial services, fraud detection, and AI powered decision-support. DFC identified the skills that the users required to access, understand, assess and safely utilize digital financial technologies and Customer Trust addressed security, reliability, transparency, privacy and responsible service practices. The concept of FinTech Innovation stood for better digital financial products and service delivery, customer experience, personalization and efficiency. Descriptive findings indicated positive perceptions on all constructs ranging from mean scores of 3.92 (SD = 0.71) for AI to 3.79 (SD = 0.76) for Customer Trust and 3.95 (SD = 0.69) for FinTech Innovation for DFC. The reliability tests showed low item-total correlation, with the overall .24 item-total alpha range from .89 (AI) to .92 (FinTech Innovation), and .91 (Customer Trust), .87 (DFC), and .89 (AI). The results highlighted that the capital markets in emerging markets need technological intelligence, users who can apply the technology and trustworthy digital environments. It is crucial to address issues of customer-friendly technology governance, customer security, privacy safeguarding, transparency, and transformational digital financial education in the governance of inclusive and sustainable innovations in the financial sector with the help of artificial intelligence technologies, the study has pointed out.

Keywords: Artificial Intelligence, Customer Trust, Digital Financial Capabilities, Emerging Markets, FinTech Innovation, Financial Technology

1. Introduction

Artificial intelligence (AI) is an era that has been catching on more quickly in recent years particularly in the financial technology (FinTech) industry where this technology is influencing the design, development and implementation of financial products and services. In recent years, Artificial Intelligence (AI) has emerged as a major technological breakthrough with a profound impact on the Financial Technology (FinTech) landscape, especially in the fields of financial products and service development, use and management. Advancement of digital payment services has been driven by AI-enabled solutions, which have also enabled much faster, agile and data-driven financial solutions for businesses in the fintech sector, as well



as by state-of-the-art investment management, insurance and lending practices. Its structure likely holds the most frequent and exciting implementation of AI worldwide and is ripe for more results from implementing AI in emerging markets where FinTech applications can address some of the constraints that inhibit access to financial services in relying on traditional financial infrastructure. Within the context of FinTech services, several recent studies emphasize the potential of AI as a transformative technology that can revolutionize the banking industry by improving efficiency and delivering innovative, customer-centric features (Akbar et al., 2025; Vuković et al., 2025).

But the rise of AI-powered FinTech is much more than about tech. It is essential that customers have enough digital financial skills to grasp, analyse and properly exploit the digital financial products. Digital financial capability is the knowledge, skill, confidence and capacity that allows them to interact with digital financial platforms and make decisions. This study suggested that financial literacy is a key determinant in uptake of FinTech and trust in the technology contributes greatly allowing the policy to build an even more robust engagement of the user in the digital financial services (DFS) (Abbas & Khan, 2024; Aftab et al., 2025). Each of these has been revealed indirectly according to recent research in Pakistan, as customer trust is a strong predictor of their willingness to use FinTech products (Zhao et al., 2024) and in the case of AI for financial advice, trust is strongly linked to users' acceptance of financial technologies that incorporate artificial intelligence (Ali et al., 2025).

Past studies have focused on one aspect at a time rather than the multiple ways that these can impact FinTech innovation, which are individual levels of FinTech adoption, financial literacy, trust and/or AI acceptance. Emerging economies provide new evidence that found the relationship between the diffusion and adoption of FinTechs with trust, perceived benefits, perceived risk, institutional conditions, and technological capabilities. A study of empirical evidence in emerging economies reveals that a set of trust, perceived benefits, perceived risk, institutional conditions and the technological capabilities all have a significant impact on FinTech service diffusion and adoption. In this context, recent studies on "Algorithmic financial services (2026): AI's competence and benevolence for the uptake by individuals" show that efficiency and benevolence are considered as key factors when it comes to adoption of AFS. Very recent research conducted within the AI in financial services domain has revealed that competence as well as benevolence of AI systems for the uptake of algorithmic financial services (AFS) are important (2026). The study explored the relationship between AI and FinTech innovation and emphasized the necessity of customer interaction with AI and digital financial education and trust. The research took a similar approach to bring together technology and customers and generate a more comprehensive view of what could help AI-driven FinTech innovations thrive in emerging markets.

1.1 Background of the Study

The transformation of the FinTech environment substantially affects the delivery of financial services as it has initiated the appearance of digital platforms, designed to combine financial services with the latest information and communication technologies. This has been significantly sped up by incorporating AI, which enables FinTech firms to handle vast quantities of structured and unstructured data, detect user behaviour patterns, automate financial choices, and supply tailored services. AI algorithms, which are integral components of financial applications such as credit scoring, robo-advisory, intelligent customer support, predictive analytics, and automated risk assessment, are therefore critical in the contemporary financial landscape. New studies indicate that AI is rapidly proving to be a driving force behind the banking sector's transformation and disruption, particularly as a means to revolutionize the approach adopted by financial institutions and institutions towards more efficient and responsive service models (Akbar et al., 2025; Shah et al., 2025; Vuković et al., 2025).

Digital financial capacities are a significant one of the prerequisites for delivering the gains of such financial technology. Financial services are becoming digital, with key new technologies, such as AI, dominating, so users can no longer take those services for granted, and must be able to understand digital financial products, analyse information, use digital platforms, identify financial risks and make appropriate decisions. So, digital financial capabilities encompasses more than financial literacy – they encompass



financial technology competency and confidence, and knowledge about digital financial technology. New studies attributed that, when financial literacy and technological awareness are combined, it will boost positive attitudes towards the use of FinTech and when trust in technology rises, so does the relationship between the capability of users and technology use (Abbas & Khan, 2024). Moreover, the study conducted in Pakistan focuses on financial literacy and impact on the adoption and engagement of financial technologies (FinTech) and finds that financial literacy is equally essential for financial technology users' knowledge and choices in the world of financial technologies (FT) are also crucial in the era of emerging financial technologies (FinTech) (Aftab et al., 2025; Dash et al., 2026).

Another crucial aspect of AI-powered FinTech development is customer trust. In addition to recommending products, like traditional FSPs, AI-based systems are capable of analysing transactions or providing financial advice through automated algorithms, which would also pose questions of acceptability, privacy and security, among other things, as well as accountability and fairness. Customers have to trust that digital channels will provide security, reliability and that the access to data can be done in accordance with the digital platform's interest. The study revealed that there is evidence in Pakistan that the perceived benefits, reputation, ease of use and security are crucial for the formation of Trust, and therefore the level of trust is very important in order to use FinTech services in Pakistan. Trust in the relationship between the perceived risk of a technology, perceived benefits, and digitalization and adoption of FinTech has also been shown to be crucial in research in Sub-Saharan Africa (Appiah & Agblewornu, 2025; Imtiaz & Amin, 2026). Another study on AI in the Financial-Services space (2026) has identified that there are two aspects of investor trust: the trust of the ability of the AI and the trust of the benevolence or whims of the AI itself, which might help to ensure consumer acceptance of the situation.

1.2 Research Objectives

1. To explore how Energy Webbing can impact FinTech innovation in emerging markets.
2. To analyse the importance of digitally Developing Financial Capabilities for FinTech Innovation in Emerging Markets.
3. To review how the influence of customer trust and their relationship on FinTech innovation in emerging markets.

1.3 Research Questions

RQ1. How Artificial Intelligence will impact FinTech innovation in emerging markets?

RQ2. What role do digital financial capabilities play in promoting FinTech innovation in emerging markets?

RQ3. In emerging markets, what are the impacts of customer trust on FinTech innovation?

1.4 Significance of the Study

This study has practical importance since it offers a holistic view of technological and customer dynamics influencing FinTech innovation in the emerging markets. The authors' analysis of AI, digital financial skills, and customer trust helps to refine the understanding of why some financial technologies working with AI are more successful in their innovation efforts than others. The outcomes can help financial institutions and FinTech companies create more accessible, reliable, secure and customer-friendly AI-powered services. The study can also help facilitate the policies of policy makers and financial regulators concerning digital financial literacy, responsible use of AI, consumer protection, data security, and trusted digital finance. The study also emphasizes the need for developing digital financial skills for customers to be able to interact effectively with the increasingly automated financial services. The study seeks to enhance the previous research on FinTech by linking innovation based on Artificial Intelligence to capabilities and trust among users in the particular context of emerging markets.

2. Literature Review

2.1 Artificial Intelligence and FinTech Innovation

Artificial Intelligence (AI) is among the critical technologies driving present-day FinTech innovation, transforming how financial institutions navigate complex processes, uncover insights from ever-growing volumes of data, make certain predictions, and design innovative financial products. Artificial intelligence (AI) has expanded the horizon of activities of FinTechs, including machine learning, NLP, intelligent



recommendation systems, automated credit assessment, fraud detection etc. In more recent times, various publications suggest that the fusion of AI and FinTech is being used as a key tool in developing financial systems that can better stand up to adversity, particularly through the use of intelligent automation and data-based decisions (Amin. 2025; Kou & Lu, 2025). AI also opens opportunities for the developing economies to address the shortcomings of conventional financial systems, bringing down service costs and financial services to underserved populations. Despite the notable progress in technological advancements, such as the use of AI, the way financial services are provided is evolving, with implications for financial inclusion that is more comprehensive (Akanfe et al., 2025; Amin, 2026).

The potential to combine the power of AI with the needs of the financial technology sector tends to be particularly immense in emerging economies, where gaps in access to and coverage of traditional financial services, infrastructure, or involvement in financial services often exist. While not every individual transaction might solve all of the issues that can arise in structuring a transaction through a traditional financial institution, alternative data, automated decision making, and the use of digital interfaces can help to address some of them. The use of AI in FinTech solutions can facilitate the adoption of alternative data, streamline and automate decision-making tasks and bring digital interfaces to overcome some of the challenges and inhibitions linked to traditional financial intermediation. In the systematic review, Marak and Ayyagari (2025) found that Fintech can be used in five main ways to progress financial inclusion and sustainable development, such as AI-enabled credit assessment and credit monitoring, fraud detection, chatbots, and better financial education.

There is also recent research that suggests financial innovation, as enabled by AI, is shifting from the basic digitalization to more and more sophisticated and autonomous services in financial applications. In the realm of FinTech, the opportunities for ongoing services enhancements manifest in multiple forms, for example as FinTech's include AI capabilities within their customer support, investment tips, threat management, credit score approval, and monetary analysis instruments. Kou and Lu (2025) pointed to emerging technologies such as AI and machine learning, blockchain and others as being crucial in shaping the future structure of FinTech. Meanwhile, Marak and Ayyagari (2025) pointed out ongoing issues on algorithmic bias, data privacy, algorithm transparency, regulatory uncertainty, and digital infrastructure inequalities. The challenges these present suggest that the ability to be available, to accept responsibility and to establish customer value, is also key in judging the innovation, and, of course, its sophistication of technology behind it.

2.2 Customers' Trust in Digital Financial Capability

This is due to the growing scholarly interest in digital financial capabilities, in which gaining access to digital financial technologies does not equate to participation with financial technologies. The app users should have the right knowledge, technology skills, confidence and decision-making skills to assess the digital financial products and conduct technology-mediated financial transactions. Differences between education, digital infrastructure, technological exposure and financial knowledge can lead to unequal benefits in emerging markets from the development of FinTechs. AI and FinTech uptake research shows that a consumer's knowledge about financial services and financial user innovative can impact the journey of how they may interact with emerging financial technologies (Akhtar et al., 2024). Such a position suggests that "smart-savvy users" will more readily interpret the advice and recommendations given by an AI and make choices about the risks in digital financial transactions.

Digital skills have been found to be related to broader economic engagement and financial inclusion through the use of technologies in the literature. Also, it is unlikely that access to Financial Services will be enhanced by Financial Technology, unless the financial marketplace is prepared to equate user ability and skills to access on-line services and transactions. Various factors of technology, users, institutions, and wider financial system have recently received systematic attention to understand and map the potential benefits that FinTech could offer to financial inclusion (Al Khub et al., 2024; Akanfe et al., 2025). Digital financial competency is not just the knowledge and skills of how to use mobile apps or online payment; it is the ability



to understand financial information, critically assess technological services, safeguard personal financial information and make suitable financial decisions in digital world.

Customer trust is also a complementary factor, for users have to feel that AI-powered monetary systems are dependable, set up and adequate to be depended on for monetary operations. Trust has become a focal point of technological adoption over the last few years but it is not just embedded in the adoption process; it also plays a significant part across the entire FinTech landscape. Digital financial relationships are unpredictable due to factors such as security, privacy concerns and uncertainties about the reliability of platforms and the accountability of companies. Devlin et al. (2025) identified trust as an important research dimension in FinTech. AI also has been applied to Financial Services research and has revealed that building trust comes with various parts including trust in the technical skill or trust in the financial services provider's benevolence towards the market-user (Chang et al., 2026).

3. Research Methodology

3.1 Research Design

The study was conducted using quantitative, cross-sectional research design, stressing the understanding of Artificial Intelligence, Digital Financial Capabilities, Customer Trust and FinTech Innovation in emerging markets. As the constructs selected were measured by numerical responses from participants and the perception of each participant was measured by standardized items from the questionnaire, the quantitative approach was used. This cross-sectional study enabled the researcher to obtain data from the respondents at one point in time, enabling the researcher to get a systematic picture of the respondents' experience of AI-based financial technologies.

3.2 Population of the Study

Participants included adults in the EM who are using FinTech and/or digital financial services. The audience included digital banking, mobile banking, digital wallet users, online payment platforms, digital lending platforms, investment platforms, AI-powered financial and other technological products and services. The use of digital financial technologies, such as internet and mobile payment platforms, was vital to accessing sufficient feedback from the population on AI integration, digital financial skills and customer confidence.

3.3 Sample Size

There were 300 respondents in the study. All samples were of adult users who had had some real-life experience with at least one type of digital financial and/or FinTech service. Target group members had to have an age of 18 years and more and be well versed in digital financial technologies in order to be able to understand the contents of the questionnaire. The number of 300 respondents was sufficient to explore the four constructs and gain reliable empirical information about innovation in emerging markets that uses AI enabled FinTech services.

3.4 Sampling Technique

The method of studying was Purposive convenience sampling technique. The selection of key informants was done by purposive sampling to ensure that the key informants have the necessary experience from digital financial technologies and by convenience sampling methods to gain access to the key informants that are active in digital and online networks. The questionnaire was shared via social media, online forums, professional networks, and other digital channels.

3.5 Data Collection Procedure

The data collection technique used was a primary data collection method called structured self-administered questionnaire. The questionnaire was sent out by the online method to targets. The participants were informed of the purpose of the research and type of their participation before they participated in the research. They informed them that they were not to be forced to take part and that their responses were confidential. The questionnaire was kept up online till a total of 300 full and usable responses were received. The answers were subsequently gathered, classified and tabulated for statistical analysis.

3.6 Research Instrument

The questionnaire was broken down into two parts. The first section gathered respondents' demographic data, comprising of their age, gender, educational attainment, employment status, and previous



experience with digital financial services. The second section contained statements to rate the four constructs – Artificial Intelligence, Digital Financial Capabilities, Customer Trust and FinTech Innovation. All items pertaining to the constructs were based on a 5-point Likert scale and ranged from 1 = Strongly Disagree to 5 = Strongly Agree. The scale enabled the participants to express their agreement with each statement concerning their experience and perception of AI-powered FinTech services.

3.7 Data Analysis

The Statistical Package for the Social Sciences (SPSS) was used to analyse the data presented. The analysis used descriptive statistic technique that involved frequencies, percentages, mean and standard deviation to explore the distribution of respondents based on their demographic characteristics and answers on the Artificial Intelligence, Digital Financial Capabilities, Customer Trust and FinTech Innovation. To determine internal consistency and reliability of measurement scales, Cronbach's alpha was computed. Item level descriptive assessment was also done for each item and based on the response pattern; the indicators of the constructs were identified. Post cleaning and coding of the data, it was examined systematically to confirm its uniformity and completeness prior to the statistical interpretation. The findings were communicated in tabular form and then interpreted in the context of the problems of the research and in relation to the questions raised in the research, emphasizing the role that the four key elements - perceived role of AI, perceived capability of digital financial instruments, perceived attitudes towards digital financial instruments, and perceived trust in digital financial instruments - have in the context of FinTech innovation in emerging markets.

4. Results and Analysis

4.1 Data Screening and Response Profile

The collected questionnaires were initially examined to determine their completeness and suitability for analysis.

Table 1

Questionnaire Distribution and Data Screening

Data Screening Category	Frequency (f)	Percentage (%)
Questionnaires distributed	320	100.00
Questionnaires returned	312	97.50
Questionnaires excluded	12	3.75
Questionnaires used for final analysis	300	93.75

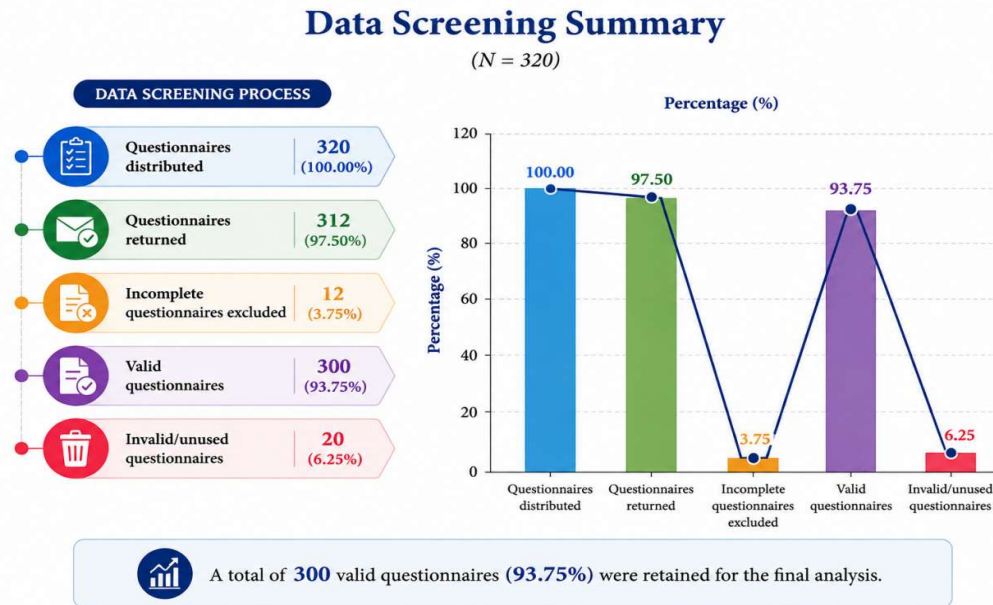
Note. N = 300.

Table 1. A total of 320 questionnaires were sent out, with 312 returned, giving a return rate of 97.50%. There were 12 questionnaires that were eliminated due to significant missing data or lack of responses to the questions. Finally, 300 questionnaires were obtained from the screening process for final analysis. The level of participation achieved within the questionnaires was high, as the number of questionnaires that were returned and usable was 93.75% of the questionnaires that were distributed. The small proportion of questionnaires that were not included also indicated that the majority of respondents filled out the questionnaire correctly. The sample of 300 participants had enough observations for the evaluation of study constructs. Data screening also meant that incomplete responses did not affect the results. The final data obtained after excluding unusable questionnaires comprised complete questionnaires for descriptive and reliability analysis.



Figure 1

Questionnaire Distribution and Data Screening



Note. The figure presents the questionnaire distribution and data screening process.

4.2 Demographic Characteristics of Respondents

The demographic analysis was conducted to describe the characteristics of the respondents included in the study.

Table 2

Demographic Characteristics of Respondents (N = 300)

Demographic Variable	Category	Frequency (f)	Percentage (%)
Gender	Male	162	54.0
	Female	138	46.0
Age	18–25 years	72	24.0
	26–35 years	108	36.0
	36–45 years	78	26.0
	46 years and above	42	14.0
Education	Undergraduate	81	27.0
	Master's	126	42.0
	MPhil/PhD	57	19.0
	Other	36	12.0
Employment	Employed	174	58.0
	Self-employed	63	21.0
	Student	45	15.0
	Other	18	6.0
FinTech Experience	Less than 1 year	51	17.0
	1–3 years	96	32.0
	4–6 years	87	29.0
	More than 6 years	66	22.0

Note. N = 300.

Table 2 indicates that 162 respondents (54.0%) were male, while 138 (46.0%) were female. The gender distribution was relatively even with slightly more of the sample being male. Regarding age, the largest group



consisted of respondents aged 26-35 years (36.0%), followed by those aged 36-45 years (26.0%), 18-25 years (24.0%), and 46 years and above (14.0%). It was evident that there were high percentages of younger and middle-aged digital financial service users. Educational characteristics showed that respondents who have a Master's qualification were the largest (42.0%) followed by undergraduate (27.0%) and MPhil/PhD (19.0%) respondents. The remaining 12.0% had other educational qualifications. In terms of employment, 58.0% of respondents reported being employed, 21.0% self-employed, 15.0% studying and 6.0% were employed in other categories. The analysis of FinTech experience revealed that 32.0% (96) had 1-3 years, 29.0% (87) had 4-6 years and 22.0% (66) had more than six years of experience in FinTech. 51 respondents (17.0%) had less than one year of experience.

4.3 Descriptive Statistics of Study Variables

Descriptive statistics were calculated to determine the central tendency and variation of the four principal constructs.

Table 3

Descriptive Statistics of the Study Variables (N = 300)

Variable	Minimum	Maximum	Mean (M)	Standard Deviation (SD)
Artificial Intelligence	1.83	5.00	3.92	0.71
Digital Financial Capabilities	1.67	5.00	3.87	0.74
Customer Trust	1.50	5.00	3.79	0.76
FinTech Innovation	1.83	5.00	3.95	0.69

Note. N = 300. Dashes indicate values not reported in the original table.

Table 3. The mean score for the FinTech Innovation item was M = 3.95, SD = 0.69 which showed the highest mean score, and it was generally seen that the respondents have high perspectives about innovation in digital financial services. Similarly, the perceptions of AI application in FinTech services showed a positive score of 3.92 (SD = 0.71) for Artificial Intelligence. The mean score for Digital Financial Capabilities was 3.87 (SD = 0.74). The result has shown a general attitude of respondents to their capability of using digital financial platforms, making digital financial transactions, understanding digital financial products and managing technology enabled financial activities. The mean for Customer Trust was the lowest of the four constructs at 3.79 (SD = 0.76). The values of standard deviation were from 0.69 to 0.76, which showed a moderate spread from the mean values. The lowest variation was seen with FinTech Innovation, indicating fairly similar perceptions among respondents. The highest standard deviation was found for Customer Trust, which suggests that there were slightly more differences in the respondents' perceptions of trust in that dimension.

4.4 Item-Level Analysis of Artificial Intelligence

Table 4

Item-Level Descriptive Statistics for Artificial Intelligence

AI Item	Mean (M)	SD
AI improves the speed of FinTech services	4.01	0.79
AI supports personalized financial services	3.94	0.81
AI improves fraud detection and security	3.91	0.83
AI provides useful financial predictions	3.88	0.82
AI improves automated customer support	3.90	0.80

Note. N = 300.

Table 4 shows that all the six AI items had relatively high mean score. The greatest score was achieved for the statement 'AI can enhance the speed of FinTech services' (M = 4.01, SD = 0.79). The findings showed that one of the most notable advantages that were highlighted in the use of AI is its efficiency. The second highest score was for personalized financial services (M = 3.94, SD = 0.81), indicating that the subjects also felt that AI is an important tool for providing customized financial services. Fraud detection and security, and automated customer support, had means of 3.91 (SD = 0.83) and 3.90 (SD = 0.80), respectively. These results showed respondents' understanding of AI's role in both financial security and customer interaction. At M =



3.88, the lowest rating was obtained for the item means for AI-supported financial predictions and financial decision-making. These scores were not as high as other AI dimensions but were still higher than the middle of the measurement scale.

4.5 Item-Level Analysis of Digital Financial Capabilities

Table 5

Item-Level Descriptive Statistics for Digital Financial Capabilities

DFC Item	Mean (M)	SD
I can use digital financial platforms confidently	3.94	0.81
I can conduct digital financial transactions effectively	3.96	0.78
I understand digital financial products and services	3.84	0.83
I can evaluate information provided through FinTech platforms	3.79	0.86
I can identify risks associated with digital financial services	3.82	0.84
I can protect my personal and financial information online	3.97	0.80
Overall Digital Financial Capabilities	3.87	0.74

Note. N = 300.

As presented in the Table 5, the overall picture of the results is that the respondents have a strong level of digital financial skills. The ability to protect personal and financial information online ($M = 3.97$, $SD = 0.80$) had the highest mean and standard deviation. The mean ($SD = 0.78$) for conducting digital financial transactions was also high. These results indicated that the respondents were highly confident in conducting practical digital financial activities. A mean score of 3.94 was achieved for the ability to use digital financial platforms confidently and 3.84 for their understanding of digital financial products. Participants also scored relatively high on their ability to detect digital financial risks, at 3.82. Overall, these answers showed that respondents had some practical skills for engaging with digital financial technologies, but that their interpretation and evaluation of complex financial information seemed to be somewhat less strong. The ability to assess information received from FinTech platforms was the lowest with $M = 3.79$ ($SD = 0.86$). This finding revealed what seemed to be an area of relatively greater user differences in capability.

5. Discussion

The potential of Artificial Intelligence in FinTech has now come to the forefront to write and automate documents, to analyse complex data, to tailor services, reduce fraud and even to speed up decision making. The influence of artificial intelligence in financial service delivery is revolutionizing the conventional design of financial service experience affecting the traditional financial products offered and how they are used. The data availability, technological architecture, and digitally powered financial systems (Liu et al., 2025) are other areas in which digital finance can help enable AI innovation. Moreover, AI applications drive organizational innovation by boosting the technological capabilities of the organization and its innovations in products and processes (Wang & Li, 2025). In the emerging markets, these are particularly important as AI driven FinTech can assist in modernizing services and tackling some of the limitations of traditional financial systems. Therefore, the use of AI must be regarded less as just an automation tool and more as an overall technological competency that can be used for continuous innovation among financial services.

Additionally, ancillary digital financial (AFS) skills are important since just because technology is present doesn't necessarily mean they are usable for efficient engagement in digital financial systems. Individuals possess the knowledge, confidence and practical skills to access digital platforms, to evaluate financial information, to understand digital products, know which areas to be cautious and be able to protect sensitive information. The recent studies have indicated that increase in financial literacy level can contribute to achieving positive results from financial technology services consumption, particularly with their advancement and application in a more sophisticated way (Zhang et al., 2025). In developing economies, financial literacy and digital skills are seen as having effects on individual perceptions, and relationship with financial technology (FT) services and the use of FT services to implement their intentions (Rahman & Sadik, 2025). The financial institutions or Fin Tech providers, therefore, need to add customer education, user-



friendliness of interfaces, financial skills training and strengthening of dialogue about financial risks to their technological innovations.

But trust is definitely a central pillar of the FinTech innovation landscape: after all, digital financial services are dependent on customers believing in the financial transactions, technologies, data management and service providers. With the rise of AI, there are new elements of trust that come into play as users may not be aware of algorithms and their application, or where their information is coming from, how it is being used, or even how it is being collected. The trust component in FinTech has gained significant focus in recent times, where its multi-dimensional nature is dependent on perception regarding technological expertise, security, transparency, privacy, and responsible organizational behaviours (Devlin et al., 2025). Moreover, AI insights & data from financial services suggests that there's a direct correlation with customer trust and the usage of AI answers in finance: when customers feel the tools & platforms are secure & reliable. (Kumar et al., 2025).

This technological progress interweaves with the capacities and expertise of users and organisations operating in digital financial ecosystem and in turn influences FinTech innovation. Currently, the institutional environment does not lend itself easily to the implementation of AI innovations, especially when it cannot sufficiently provide transparency and accuracy that helps to reduce uncertainty, as well as proper digital framework and skilled operators, they need to be implemented. If supported by financial literacy, availability, security and adequate institutional conditions and arrangements, emerging economies have proven to be able to contribute to the wider financial inclusion by means of digital financial technologies (DFT) over the past few years (Akanfe et al., 2025). Furthermore, the study reveals that in the context of FinTech in emerging market contexts, considerations must not only focus on greater financial accessibility and service delivery improvements, but also on facing the new challenges of privacy protection, cyber security, and consumer protection (Ngo et al., 2025).

When we think about it from a holistic perspective, it's clear that we need to consider all three - AI capability, digital financial skills, and customer trust. A person who offers insight into both the technology and the cases it can help to improve and has the ability to apply it effectively. Trust by customers is required, as it generates an important relational platform to access the digital financial services in the future. Recently there was evidence that disputes this interconnected approach as they provide evidence for interdependent relationships between digital financial literacy, participative engagement with FinTech and financial capability which can drive a successful functioning digital financial ecosystem (YUN, 2026). At the same time, trust will serve as a key factor in ensuring that technological evolution does not create uncertainty and resistance, but an even larger customer base, (Sholevar & Bachmann, 2025). The key take-away is that the FinTech development exercise in these emerging markets must be a human-centred exercise where technology development and building capabilities goes hand-in-hand, accompanied by measures of safeguarding against social and psychological risks, ensuring a high level of privacy safeguard and ensuring transparency.

6. Conclusion

The research drew on three key areas that are ripe for innovations and developments in FinTech: Customer trust, Digital financial skills and Artificial Intelligence. AI and digital was the enabler that allowed more automation, personalisation, decision support, fraud detection and delivery of financial services, and digital financial capabilities to access, understand, evaluate and use technology-based financial services. The importance of customer trust remained crucial to fostering trust on digital platforms, especially those concerning financial services and online transactions. The results corroborated a holistic approach, where technological development is not sufficient to ensure sustainable development of FinTech. Capable users and reliable digital environments like improved innovation also required reliable methods of protection and open service delivery, as well as responsible data practices. The study thus reinforces the importance of bringing together the innovation of AI technologies, digital financial education, consumer protection, privacy protection, and trust measures for emerging markets' digital financial transformation to be inclusive, secure and viable.



Author's Contributions

All authors participated in ideation, development, and writing the manuscript. All authors read and approved the final manuscript.

Conflict of Interest Statement

The authors declare that there is no conflict of interest regarding the publication of this article.

Funding Statement

The authors did not receive financial support from any funding agency or external organization for the research, authorship, or publication of this article.

Informed Consent

Informed consent was obtained from all participants prior to data collection. Participants were informed about the purpose of the study, the voluntary nature of their participation, and their right to withdraw at any time without any consequences. The confidentiality and anonymity of respondents were guaranteed throughout the research process.

Data Availability

The datasets generated and analysed during the current study are available from the corresponding author upon reasonable request. The authors are committed to transparency and will provide detailed methodological information and analysis protocols upon request.

References

- Abbas, N., & Khan, H. G. M. (2024). The role of financial literacy and technology savviness on FinTech adoption in traditional banking, the mediating role of trust in technology. *Pakistan Journal of Humanities and Social Sciences*, 12(4), 3183–3191. <https://doi.org/10.52131/pjhss.2024.v12i4.2577>
- Aftab, R., Fazal, A., & Andleeb, R. (2025). Behavioral biases and FinTech adoption: Investigating the role of financial literacy. *Acta Psychologica*, 257, Article 105065. <https://doi.org/10.1016/j.actpsy.2025.105065>
- Akanfe, O., Bhatt, P., & Lawong, D. A. (2025). Technology advancements shaping the financial inclusion landscape: Present interventions, emergence of artificial intelligence and future directions. *Information Systems Frontiers*, 27, 2189–2212. <https://doi.org/10.1007/s10796-025-10597-z>
- Akbar, U., Asghar, F., & Arshad, M. (2025). FinTech disruption and transformation in banking: Mediating effect of artificial intelligence. *Advance Journal of Econometrics and Finance*, 3(2), 210–223. <https://doi.org/10.63075/99vmf939>
- Akhtar, M., Salman, A., Ghafoor, K. A., & Kamran, M. (2024). Artificial intelligence, financial services knowledge, government support, and user innovativeness: Exploring the moderated-mediated path to fintech adoption. *Heliyon*, 10(21), Article e39521. <https://doi.org/10.1016/j.heliyon.2024.e39521>
- Al Khub, A., Saeudy, M., & Gerged, A. M. (2024). Digital financial inclusion in emerging economies: Evidence from Jordan. *Journal of Risk and Financial Management*, 17(2), Article 66. <https://doi.org/10.3390/jrfm17020066>
- Amin, F. (2025, November). Sentinel Polity: LLM-grounded policy-as-code for IaC hardening in hyperscale clouds. In *International Conference on Data Science, Computation and Security* (pp. 326–335). Springer Nature Switzerland.
- Amin, F. (2026). Adaptive cyber risk management. In *Data science and security: Proceedings of IDSCS 2025* (Vol. 2, p. 222). Springer.
- Appiah, T., & Agblewornu, V. V. (2025). The interplay of perceived benefit, perceived risk, and trust in FinTech adoption: Insights from Sub-Saharan Africa. *Heliyon*, 11(2), Article e41992. <https://doi.org/10.1016/j.heliyon.2025.e41992>
- Başar, D., Keskin, H., Esen, E., Merter, A. K., & Balcioglu, Y. S. (2025). Digital financial literacy and savings behavior: A comprehensive cross-country analysis of FinTech adoption patterns and economic outcomes across 12 nations. *Borsa Istanbul Review*. Advance online publication. <https://doi.org/10.1016/j.bir.2025.09.004>



- Chang, C.-Y., Park, S., & Dinh, M. C. (2026). Advice by algorithms: Dual dimensions of trust in AI financial service adoption. *Journal of Retailing and Consumer Services*, 88, Article 104537. <https://doi.org/10.1016/j.jretconser.2025.104537>.
- Cherukuru, S. K. (2025). Explainable AI (XAI) in cloud-native financial services: Building trust and transparency in modernized decision engines. *Journal of Computer Science and Technology Studies*, 7(6), 1033–1042. <https://doi.org/10.32996/jcsts.2025.7.122>
- Dash, A., Samantray, B. S., Reddy, K. H. K., Amin, F., & Mishra, S. K. (2026, April). A secure framework for smart waste management using IoT, machine learning, and blockchain. In *2026 1st International Conference on Emerging Trends in Advancements and Applications of Computational Intelligence Techniques (ETAACIT)* (pp. 1–7). IEEE.
- Devlin, J. F., Roy, S. K., Sekhon, H., Moin, S. M. A., & Sahiner, M. (2025). Trust and FinTech: A review and research agenda. *Electronic Markets*, 35, Article 62. <https://doi.org/10.1007/s12525-025-00803-w>
- Imtiaz, U., & Amin, F. (2026). The strategic role of threat intelligence in combating financially motivated cyber threats in the United States. *Journal of Computational Systems & Engineering Insights*, 4(2), 42–61.
- Kou, G., & Lu, Y. (2025). FinTech: A literature review of emerging financial technologies and applications. *Financial Innovation*, 11, Article 1. <https://doi.org/10.1186/s40854-024-00668-6>
- Kumar, N. R. (2026). Assessing the influence of AI adoption and trust on customer satisfaction in digital banking services. *SAM Advanced Management Journal*, 91(2), 165–183. <https://doi.org/10.1108/SAMAMJ-12-2024-0100>
- Kumar, R., Kumari, P., Singh, N., & Alofaysan, H. (2025). Smart banking chatbots and consumer engagement: The role of trust and privacy in AI-driven banking. *Journal of Strategic Marketing*. Advance online publication. <https://doi.org/10.1080/0965254X.2025.2481140>
- Liu, H., Jafri, M. A. H., & Xu, S. (2025). The impact of artificial intelligence on consumers' willingness to use CBDCs: Evidence from the Chinese banking sector. *Humanities and Social Sciences Communications*, 12, Article 834. <https://doi.org/10.1057/s41599-025-05067-5>
- Marak, N. R., & Ayyagari, L. R. (2025). Artificial intelligence for financial inclusion and sustainable development: A systematic literature review. *Discover Artificial Intelligence*, 5, Article 390. <https://doi.org/10.1007/s44163-025-00668-0>
- Ngo, X. T., Le, K.-A., Nguyen, T. T., & Nguyen, K. D. (2025). Does FinTech curb bank risk-taking? Insights from an emerging economy. *Finance Research Letters*, 86, Article 108722. <https://doi.org/10.1016/j.frl.2025.108722>
- Rahman, M. M., & Sadik, N. (2025). Nexus of digital financial service adoption, decent work and environmental sustainability: Results from SEM-NCA approaches. *Discover Sustainability*, 6, Article 164. <https://doi.org/10.1007/s43621-025-00972-w>
- Shah, S. M. H., Amin, F., & Khan, A. (2025). Cyber-resilient mobile edge computing: A deep neural approach for secure and efficient task offloading. *The Asian Bulletin of Big Data Management*, 5(1), 200–215.
- Sholevar, M., & Bachmann, R. (2025). Patterns of trust in financial services: Critical factors and gender differences. *Journal of Financial Services Marketing*, 30(2), Article 10. <https://doi.org/10.1057/s41264-025-00303-0>
- Vuković, D. B., Dekpo-Adza, S., & Matović, S. (2025). AI integration in financial services: A systematic review of trends and regulatory challenges. *Humanities and Social Sciences Communications*, 12, Article 562. <https://doi.org/10.1057/s41599-025-04850-8>
- Wang, L., & Li, Y. (2025). Artificial intelligence, fintech and corporate new quality productive. *Finance Research Letters*, 85, Article 108090. <https://doi.org/10.1016/j.frl.2025.108090>
- Zaimovic, A., Omanovic, A., Dedovic, L., & Zaimovic, T. (2025). The effect of business experience on fintech behavioural adoption among MSME managers: The mediating role of digital financial literacy and its components. *Future Business Journal*, 11, Article 26. <https://doi.org/10.1186/s43093-025-00432-x>



-
- Zhang, Q., Guo, L., Chen, D., & Lei, S. (2025). Does mobile access to the internet increase household financial literacy? *International Review of Financial Analysis*, 98, Article 103894. <https://doi.org/10.1016/j.irfa.2024.103894>
- Zhao, H., Khaliq, N., Li, C., Rehman, F. U., & Popp, J. (2024). Exploring trust determinants influencing the intention to use FinTech via SEM approach: Evidence from Pakistan. *Heliyon*, 10(8), Article e29716. <https://doi.org/10.1016/j.heliyon.2024.e29716>

