

Digital Service Transformation and FinTech Adoption in Banking: Implications for Operational Performance in Jordan

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Abstract. This paper investigates the impact of digital service transformation and financial technology (FinTech) adoption on operational performance in the banking sector, specifically examining banks in Jordan. With rising pressure on financial institutions to optimize efficiency and service delivery through digitalization, the mediating role of technology-enabled capabilities has become increasingly important to understand. Design: A cross-sectional survey was used with a quantitative design among employees of Jordanian banks. We collected 312 valid responses and analyzed the data using a two-step PLS-SEM approach. Results show that both FinTech adoption and digital transformation have a positive and significant impact on banking operational performance. The result for FinTech adoption in relation to Financial Performance is substantial ($\beta = 0.572$, $p < 0.001$) and the result for digital transformation is moderate but statistically significant ($p < 0.01$). The model explains a significant proportion of the variance in operational performance ($R^2 = 0.620$), suggesting an acceptable level of explanatory power. This study adds to the existing literature by investigating FinTech adoption and digital service transformation simultaneously and deriving operational performance measures for both constructs through a service systems lens within an emerging banking context. They also offer practical insights for bank managers on the value of balancing FinTech strategies with process-level enhancements and a stronger focus on digital capabilities that align services with client needs, improving responsiveness and effectiveness. Nevertheless, the study is limited by its cross-sectional design, dependence on self-reported data and single-country setting. Further investigations should consider longitudinal designs, such as objective performance indicators and cross-ethnic and geospatial studies.

Keywords: FinTech Adoption, Operational Performance, Financial Technology, Digital Banking, Operational Efficiency, Emerging Economies.

1. Introduction

Over the last 10 years, the landscape of global finance has undergone a significant evolution as a result of rapid financial technology (FinTech), digital transformation, and artificial intelligence (AI) development and application (Jingrong et al., 2024; Al-Jamal et al., 2025). These technological advancements have substantially redefined how banks structure service processes, control information flows, and optimize operational efficiency in rapidly data-rich environments (Almatarnah et al., 2023). Consequently, there is increasing pressure on financial institutions to implement digital technologies not only as a means of competition but as a mechanism for enhancing service delivery performance and operational responsiveness (Al-Shawabkeh, 2020). These issues are highly evident in developing markets such as Jordan (Hailat et al., 2023). With rising aspirations for modernized digital service infrastructures, as well as the continuing push towards financial inclusion (Maabreh, 2024), a stark imperative exists for banking sector decision-makers to strike an equilibrium between both endeavors. Also, Jordanian banks (commercial and Islamic) have been increasing their adoption of digital financial services, such as mobile payments, e-wallets, internet-based lending with fintech companies, and blockchain-based solutions for reporting under the Central Bank of Jordan's regulations. Initiatives such as open banking, digital financial inclusion, and AI-enabled service systems further support these trends. But access to technological tools does not necessarily lead to improved performance outcomes. Rather, banks should build more holistic digital transformation capabilities that translate to the integration and emergence of these technologies (Almuhairat et al., 2025).

Digital transformation capability is an organizational-level competency that denotes the ability to realign technological, human, and organizational resources to improve service processes and achieve sustainable performance gains (Dahiyat, 2017). This includes being able to introduce digital technologies into the workflow of operations, strengthening data capabilities, and increasing agility (Alnsour et al., 2025). Existing studies have repeatedly demonstrated that digital transformation can improve organizational agility and operational efficiency (Gharaibeh, 2024). In the logistics education and financial services sectors. In the realm of finance, specifically in banking institutions, this means that organizations will evolve from implementing standalone technologies to restructuring their service delivery around digital-first approaches, where capital market solutions are embedded within value chains (Al-Zaqeba et al., 2024). Despite considerable advancements, Jordanian banks still face various structural and operational challenges that have hindered the realization of digital transformation benefits. This is characterized by legacy IT infrastructures, fragmented data wanting systems, limited data governance capabilities as well as cybersecurity concerns and regulatory constraints (Jarrah, 2025). Such challenges lead to disjointed digital strategies that do not really result in better operational performance or improved services. Now, there is an increasing need to understand how digital advancements can be used to improve service efficiency, responsiveness, and operational coordination in banking systems. Conversely, the level of FinTech adoption is viewed as a crucial factor in enabling innovation and customer-centric service delivery in the banking industry (Almatarnah et al., 2024). FinTech applications like AI-based analytics, digital auditing systems, and blockchain technologies help enhance transparency, flexibility and process efficiency (Lootah, 2024). Nevertheless, practical experiences indicate that the advantages gained from adopting FinTech are not always consistent or long-term especially if implemented without the required digital transformation capabilities. Specifically, it suggests that the relationship between FinTech adoption and operational performance is contingent on higher-level organizational capabilities and/or the extent to which digital technologies have been embedded into service processes. While earlier research on the relationship between FinTech adoption, digital transformation/organizational performance exists, it presents these constructs independently. Consequently, their collective impact on operational performance, especially in the context of emerging banks has received minimal empirical attention. Additionally, the existing literature has thus far addressed digital service transformation in banking systems from the perspective of unnecessary reliance on operational efficiency, service responsiveness, and information integration. This gap is

further magnified in Jordan, where rapid technological adoption occurs despite ongoing structural and regulatory limitations (Alrawashedh & Shubita, 2024; AlJabali et al., 2025).

Hence, this research aims to investigate the direct impact of FinTech adoption and digital transformation on the operational performance of Jordanian banks. In contrast to previous studies that have focused exclusively on either technology adoption or service transformation capabilities, this study takes an integrated view by relating these constructs to operational performance in a service systems perspective. The contributions of this study are three-fold. First, it contributes to the empirical evidence of how FinTech adoption and digital service transformation improve operational performance in an emerging banking environment. Second, it builds on the literature by treating these constructs as interdependent and framing them through the lens of digital service systems that enable their simultaneous improvement, thereby enhancing service delivery efficiency and operational coordination. Third, it provides evidence-based implications for banking managers and policymakers by discerning core technological and organizational prerequisites that drive successful digital transformation along with performance enhancement.

2. Literature Review

Banking and finance in Jordan have gained 21st-century digital technologies, financial technologies, and customer expectations in the past 10 years. The extent of an organization's success in digitally transforming is no longer an auxiliary execution but rather of strategic relevance. Almarashdah et al. (2024) illustrate that technology incorporation, the marketing mix and competitive strategies jointly account for more than two-thirds of the perceived banking performance disparity of the commercial banks in Jordan. The authors, based on empirical findings, concluded that all of the factors mentioned above are strong predictors of performance, as demonstrated in the regression results, leading to the conclusion that performance for operational excellence can be obtained by ensuring that there is a strategic interrelation between digitization initiatives and business objectives." Furthermore, the authors contend that the banks in Jordan are, and will increasingly be, in an environment where they will need to implement a fully integrated digital transformation to satisfy the rapidly changing technological environment, customer needs, and competition in the banking sector. Aligned with the results of the first study, Alrawashedh and Shubita (2024) confirmed, using regression analysis, that digital transformation leads to an improvement of customer experience as well as the enhancement of IT innovations and, subsequently, an improvement in the financial performance of the organization, but in an indirect way. The evidence provided by the authors suggests that an organization, after incorporating technology, will improve operational efficiency and, in addition, the organization will experience an improvement in outcomes as a result of the operational efficiency improvement. The authors make a strong argument that the incorporation of digital technologies in the organization is a strategic move as opposed to temporary work on technologically refreshing the organization.

In the same way, Alroud (2025) findings appreciate the role of digital competence in strengthening financial disclosure and improving operational efficiency and posit that digital transformation is an enhancer of governance and a driver of efficiency. This corresponds to the overall assumption that a bank's technological maturity boosts its ability to handle complex issues related to sustainability and reporting, improving its overall sustainability. Abueid et al. (2025), Fintech adoption has become a strong impetus for innovative service and customer-centered change in Jordanian banks. Found that the adoption of Fintech highly positively influences customers' engagement and satisfaction. The study showed that the adoption of Fintech service offerings, especially mobile banking, digital payment facilities, and AI interfaces, improves customer satisfaction and loyalty. This led to the conclusion that Fintech is more than a modernization of banking technology but a significant tool for relationship management in the banking sector.

Al-khawaja et al. (2025) established statistically significant relationships between FinTech applications (payment and investment management) and enhancements in digital service delivery. This

led to the recommendation for banks in Jordan to focus on more strategic partnerships with FinTech companies to establish innovation centers in finance and configurable open banking APIs for more seamless service and personalized service delivery. The studies created a narrative that showcased FinTech adoption as a driver for innovative activities and a key controller for the levels of operational competitiveness in the banking systems in Jordan. The integration between FinTech and digital transformation has recently been more appreciated in scholarly works. Alnsour et al. (2025) reported that IoT facilitates the diffusion of FinTech through better operational customer focus, data-led decision making, and superior risk management, while DTC also builds on that by making system integration seamless and promoting a more agile organization. This further validates the point of FinTech and digital transformation being two simultaneous activities, with the state of technology being the major accelerator of the adoption and exploitation of the innovative capabilities. Simultaneously, Shehad (2025) showed that qualitative focus disclosures that emphasize innovation, customer contentment, and operational agility taught quantitative indicators that demonstrate a growing awareness of the strategic value of Fintech attributes' opacity. Long-standing institutional trust suggests that successful digital transformation is not just about technological investment, as the issues of institutional trust, disclosure, and accountability matter. Since digital transformation and the adoption of Fintech are the primary focus, Qatawneh (2024) underscored the importance of business intelligence (BI) as a facilitator of enhanced decision-making in banks in Jordan. In extending the Technology-Organization-Environment (TOE) framework, his study identified that the three critical BI adoption mechanisms, such as improved decision-making outcomes, were the significant positive influence of the tech and the org and the extremes. Organizational readiness, however, emerged as the only notable predictive variable, indicating that for strategic and cultural alignment to be achieved, technological interactivity is a prerequisite for improved measurable performance outcomes (Jarrah et al., 2025). Therefore, the study closes the conceptual gaps between technological interactivity and managerial dexterity of the adoption of transformational mindsets, demonstrating that digital systems are only part of the equation. Digital transformation is within the grasp of operational management, operational structures, and the regulatory systems, although performance is a function of several dynamics and variables. Not to mention the rapid integration of FinTech (Gharaibeh et al., 2024), which removed the obstacles of access, adequate performance, transparency, and rapid flow and as a result, increased customer participation in and operational efficiency of the system. In the Jordan banking sector, there has been a growing adoption of FinTech as a result of a growing imbalance where banks are being heavily pressured by both their clients and their competitors to digitally transform their services. Also, early-stage adoption of technology focuses on technological readiness, organizational culture, or corporate culture, and also on backing from the government. The TOE type focuses on Empirical Evidence and provides a research-based explanation for top-level managers' endorsement, competition, and regulatory backing as the main drivers of FinTech (Jarrah et al., 2024; Alazzam et al., 2023). The convergence of digital transformation and the Internet of Things (IoT) propelled the adoption of FinTech. Empirical Evidence provides clues for this perspective. The explanation demands flexibility, FinTech-capable infrastructure, and Data Management.

In Jordan, the COVID-19 Pandemic has increased the need for contactless and remote banking, making digital transformation of services a key competitive advantage for the banking industry (Al Azzam et al., 2022). Further, in Qatawneh (2024), digital transformation was found to act as a mediator between an organization's readiness and its performance in decision-making, indicating that the benefits of true operational advances occur when the adoption of technology is integrated with strategic planning. Moreover, Alnsour et al. (2025) found that, in the adoption of FinTech, the digital transformation capability is a key relational modulator of the IoT analytical and infrastructural capabilities, indicating that the benefits of tech innovations in the digital age are significant with higher levels of digital maturity. Also, Le et al. (2025) state that the operational efficiency of the commercial banking sector is strengthened with the use of AI, big data, and digital technologies through digital

transformation, and this is also dependent on the level of governance and the implementation capabilities. This is affirming that banks with strong technological ability are more likely to deploy digital resources to achieve greater operating efficiency.

Considering the industry as a whole, Porfirio et al. (2024) added to their analysis the micro and macro-level predictors, and from these, they concluded that employee skills, management adaptability, and digital literacy are pivotal in realizing digital transformation (DT). The result indicates organizational dexterity and human resources to be the principal levers to enhance the benefits from digital transformation. Furthermore, in the case of Indonesia, Aryasari and Usman (2024) confirmed that the Internet, secured data, and tech investment positively and significantly, as other findings of bank profitability, as in Chao et al. (2024), who noted that digital transformation in banks for China improves profitability by better asset quality, operational efficiency, and risk management. More scholars justify this efficiency-driven rationale. Rashwan and Kassem (2021) underscored the fact that operational efficiency and competitiveness of a system are enhanced by digital transformation alongside the capacity for continual evaluation of performance, spaced innovatively, and timely forecasting of deviation from the desired targets. DT positively affects the operational efficiency of banks, and so their competitive edge, while advocating for a mix of risk management, innovation and technology for prudent integration of financial resources, as in Shehadeh et al. (2023) from Jordanian Islamic banks, along with the cost reduction, these benefits also include strategic resilience and performance adaptability. As for the temporal effect of DT, He et al. (2025), on the other hand, found that digital transformation is faster; there is a reduction in operating cost and improved profitability, and found that rapid digital transformation in the bank is related to the business diversity and data-driven decision-making in the presence of the structural heterogeneity in the banks.

In a study Yue (2024), who noted that technological innovation positively influences the relationship between Digital Transformation (DT) and Return on Equity (ROE), explaining that innovation is one of the facilitators for operational success driven by DT. From the African perspective, Mwenda and Muthimi (2025) digital transformation strategies (such as digital banking services, analytics, FinTech partnerships, and cloud services) instantiate considerable positive impacts on operational efficiency and strategic development. Tran et al. (2023) also explain that the Digital Transformation (DT) of banking enhances and increases operational revenues and strengthens the customer-bank relationship and is a prime example of DT in responsive service innovation of economically developing nations.

A plethora of studies also examine the mediation and moderation of the internal or external variables at play. Huy and Tam (2025) found that the impact of organization capabilities (leadership, culture, and financial capacity) on business efficiency was also mediated by digital transformation. It was concluded that having the capacity to digitally transform, as a dynamic capability (among internal resources), is a significant determinant of business success. In the same manner, Siswanti et al. (2024) confirmed that digitally transforming enhances the governance and financial performance of Islamic rural banks and that the economic performance of the banks mediated the influence of DT on positive business sustainability. In this line, Danh and Nguyen (2025) highlight that DT is a significant catalyst for amplifying the impact of market orientation and corporate social responsibility on corporate performance. This demonstrates DT's strategic importance beyond the technological realm to include social behavior and value creation. Probojakti et al. (2025) evidenced that DT provides the agility and the resilience at the corporate level, which are the pillars of sustained competitive advantage. Findings by Alnsour et al. (2025) also indicate that the IoT functionality of banks positively affects the FinTech diffusion within the customer service and risks management of Jordanian banks. This reinforces the interdependence of FinTech with other innovations such as digitization. Based on the above discussion, the following hypotheses were developed:

H1: Digital Transformation has a positive and significant effect on Banking Operational Performance.

H2: FinTech Adoption has a positive and significant effect on Banking Operational Performance.

Figure 1 depicts the conceptual framework of the study, showing the direct effect of FinTech adoption and Digital Transformation considered as independent variables, on the Operational Performance of Banking as the dependent variable of this study. Based on the framework, both FinTech Adoption and Digital Transformation are believed to enhance the operational performance of banks through greater efficiency, innovation, and customer experience. FinTech Adoption pertains to the adoption of FinTech (e.g., mobile banking, blockchain, and AI-enabled analytics) by banks for performance improvement and value-adding services (Maabreh, 2024; AlZakwani et al., 2025). On the other hand, Digital Transformation is the more extensive and comprehensive, as well as strategic, transformation of the banking ecosystem that is being catalyzed by digital technologies, automation, and data-driven decision-making. The model postulates that if FinTech and digital transformation occur concurrently, they are likely to have synergistic impacts, manifested in superior operational outcomes, including speeding up service delivery, lowering operational risks, and improving overall resource efficiency (Lootah, 2024). This motivates the present study to seek to directly investigate these associations and analyze the implications of the interplay between innovation and sustainable performance in banking. Figure 1. Proposed conceptual model of the study illustrating the direct effect of FinTech adoption and digital transformation on the operational performance of the banks.

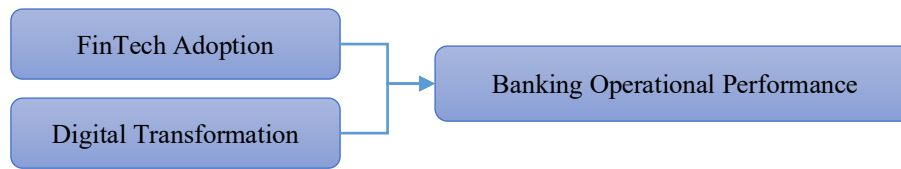


Fig.1: The proposed conceptual model of the study

3. Methodology

This study used a quantitative, explanatory and cross-sectional design to explore the relationships among FinTech Adoption (FTA), Digital Transformation Capability (DTC), and Banking Operational Performance (BOP) in the context of Jordanian banks. Theoretical underpinnings. First, the Dynamic Capabilities Theory (DCT) rooted on the notion that the organization needs to integrate, build and reconfigure internal and external competences is acknowledged to be important for organizations operating in fast-changing environments. FinTech Adoption in this study refers to the technological innovation segment that enables banks to deploy superior digital solutions; Digital Transformation Capability denotes the organizational capability of banks to embed such technologies into their processes and workflows. These dynamic capabilities collectively impact operational performance by enabling banks to operate with efficiency, agility and responsiveness. The conceptual model proposed (Figure 1) makes the link between DCT more explicit by clarifying how dynamic capabilities mediate the relationship between technology adoption and operational outcomes in this study.

Data were gathered using a structured questionnaire, which was administered to managerial and supervisory staff in the commercial and Islamic banks under the supervision of the Central Bank of Jordan. Out of 400 distributed questionnaires, 312 were returned valid, giving a response level of 78%, which is considered to be sufficient for sophisticated multivariate techniques such as Partial Least Squares Structural Equation Modelling (PLS-SEM) employed in this study using SmartPLS 4.0. The measurement items were based on instruments that have been validated in previous studies and were measured on a 5-point Likert scale ranging from 1 (“strongly disagree”) to 5 (“strongly agree”).

Quantitative results have shown that there were more male respondents than female respondents, being 61% male and 39% female. Age distribution, on the other hand, showed that 46% of the respondents were 31 to 40 years old, and 35% were 41 to 50 years old, showing that there is a mature-age workforce that has a fair amount of experience working in banking. Respondents' education also showed that 71% of them had bachelor's degrees, while 24% were postgraduates, meaning that the bank managers were well educated. Thus, survey participants likely had the technical and managerial competency to evaluate digital and Fintech solutions.

Perceptions were moderate to high in all variables of the study, and the means for Purposed Technology Adoption were particularly high at 3.98 (SD 0.63), showing that there was a range of banking services available digitally, which included mobile banking, payments, and AI-based banking. The mean of Digital Transformation Capability was 4.02 (SD 0.59), which means that the banks had sufficient technological capacity, appropriate data, and sufficient personnel to implement the changes. Banking Operational Performance meant that other banks probably received good organizational benefits for the efforts they were making. The results show that the banks in Jordan have a developed digital strategic focus, which means they have developed facilities to support technology.

There were positive relationships between the key constructs after further correlation analyses. The correlation between FinTech Adoption and Banking Operational Performance was strong ($R = 0.71$, $p < 0.01$), meaning that the more FinTech was provided, the more there were operational outcome improvements, like better training and service quality, process improvements, and operational cost efficiencies. Also, Digital Transformation Capability was positively and significantly associated with FinTech Adoption ($R = 0.69$, $p < 0.01$) and with Banking Operational Performance ($R = 0.74$, $p < 0.01$). This means that DTC not only boosts the adoption of technology but also enhances the positive influence of DTC on performance improvements through better digital alignment and more flexible strategic dexterity.

From the reliability analysis, the internal consistency was satisfactory with Cronbach's alpha ranging from 0.938 to 0.966, and the Composite Reliability (CR) was greater than 0.85 across all constructs. The convergent validity was confirmed with Average Variance Extracted (AVE) being greater than 0.50, and the discriminant validity was demonstrated by the ratios of the Heterotrait-Monotrait (HTMT), all of which were below 0.85. Alnsour et al. (2025) built upon the premise that organizations' digital readiness impacts the overall productivity and operational efficiency of the organizations. Therefore, for institutions that are in the early stages of digital advancements, especially in areas as vital as FinTech, the data reflects that they are in the early stages of digital development in FinTech, and the institutions are operationally efficient. Your interpretation of the descriptive data of the mean and the high values is that the Jordanian banks are at a high stage of digital maturity in FinTech.

4. Results

To assess the constructs' (FinTech Adoption, Digital Transformation, Banking Operational Performance) reliability, validity, and explanatory potential, the measurement model has been evaluated. The relationships and structural outer loadings for the model's indicators are depicted in Figure 2. The data show that all the indicator loadings are above 0.87, which shows good reliability of the items across constructs. The two paths from FinTech Adoption ($\beta = 0.572$) and Digital Transformation ($\beta = 0.260$) to Banking Operational Performance are positive, which means that both the adoption of FinTech solutions and the developed digital transformation positively and directly influence the banking operational performance. Figure 2. Measurement model results for FinTech adoption, digital transformation, and banking operational performance.

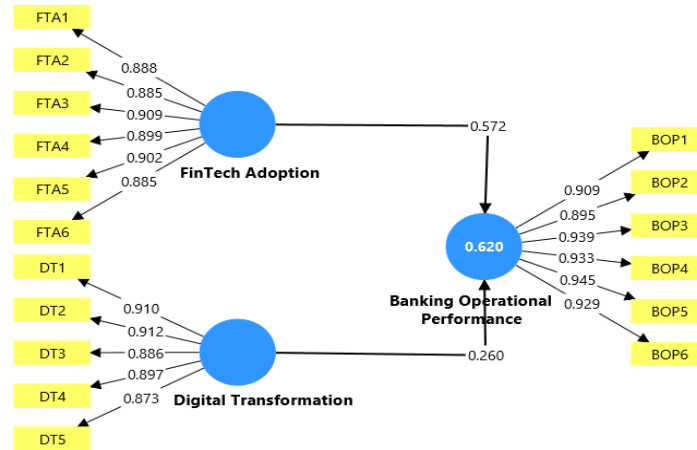


Fig.2: Measurement model results

Table 1 displays the internal consistency reliability and convergent validity indices for all constructs. The overall Cronbach's alpha falls within the range of 0.938-0.966, indicating superior internal consistency reliability, as all values exceed the recommended level of 0.70. Likewise, the Composite Reliability (ρ_c) of all constructs ranges between 0.953 and 0.973, again supporting the stability and resiliency of the measurement scales. Furthermore, the Average Variance Extracted (AVE) values range from 0.801 to 0.856 and are all higher than the accepted threshold of 0.50, indicating acceptable convergent validity. This means that the items in each factor account for a substantial amount of variance and sufficiently reflect the latent variable.

Table 1: Construct reliability and validity

Construct		Cronbach's alpha	Composite reliability (ρ_a)	Composite reliability (ρ_c)	Average variance extracted (AVE)
Banking Operational Performance		0.966	0.968	0.973	0.856
Digital Transformation		0.938	0.941	0.953	0.802
FinTech Adoption		0.950	0.951	0.960	0.801

The findings overall indicate that the measurement model meets the required standards for psychometric stability (internal consistency and convergent validity), indicating its validity. Discriminant validity was assessed using the Fornell–Larcker criterion, as illustrated in Table 2. AVE square root values for each construct (diagonal values) are larger than their correlations with the other constructs, suggesting that constructs are different from each other. The correlation coefficients between constructs (FinTech Adoption and Digital Transformation (0.799), FinTech Adoption and Banking Operational Performance (0.799), and Digital Transformation and Banking Operational Performance (0.722)) constitute moderately strong relationships but fall within acceptable levels of discriminant validity limits.

Table 2: Discriminant validity

Construct	Banking Operational Performance	Digital Transformation	FinTech Adoption
Banking Operational Performance			
Digital Transformation	0.722		
FinTech Adoption	0.799	0.799	

These results support the fact that the constructs are conceptually related (as expected given the model), but empirically distinct, which lends support to the theory and its validity (Alseikh et al., 2026). The explanatory power of the model was evaluated by examining the R-squared statistics (Table 3). The overall R^2 of Banking Operational Performance is 0.620, indicating that FinTech Adoption and digital transformation account for 62% of the variance in banking operational performance. The adjusted R^2 value (0.618) further substantiates this result, indicating a good level of model fit and predictive accuracy.

Table 3: Coefficient of determination for the endogenous construct

Construct	R-square	R-square adjusted
Banking Operational Performance	0.620	0.618

These levels of explanatory power are considerable when it comes to behavioral and financial research of this nature. In this case, it means that combined FinTech innovations and initiatives of digital transformation affect the operational results of banking establishments positively. This is consistent with the earlier studies (AlZakwani et al., 2025; Lootah, 2024), which emphasized that the change occasioned by technology is the main driver of superior performance in banking within the digital era.

4.1. Structural Model Results

This research investigated the hypotheses concerning the relationships of FinTech Adoption, Digital Transformation, and Banking Operational Performance. The results of the analysis are illustrated in Figure 3, which provides the path estimates and significance levels. Figure 3 also shows the results of the two hypotheses regarding the positive and statistically significant influence of the two predicting variables (FinTech Adoption and Digital Transformation) on Banking Operational Performance, which confirms hypotheses H1 and H2.

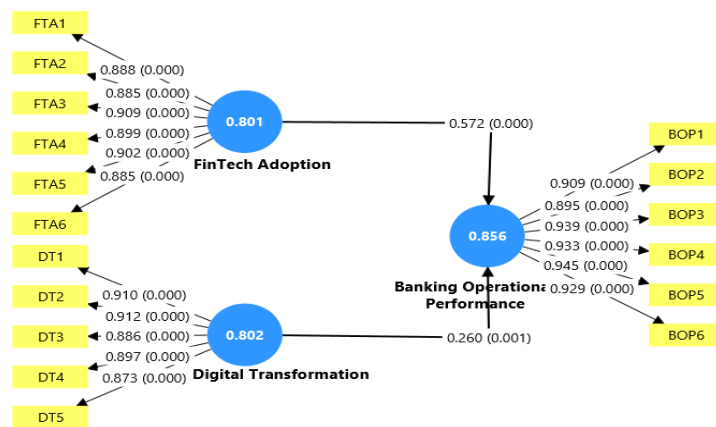


Fig.3: Structural model results

The path coefficient of FinTech Adoption on Banking Operational Performance = 0.572 ($p = 0.000$), suggesting that the relationship is highly significant. This means that the adoption of FinTech services

(such as digital payments, online solutions for lending, and AI applications in analytics) positively affects the operational efficiency and quality of service delivery at banks. This positive correlation is widely acknowledged, as FinTech adoption is recognized in the literature for its ability to positively influence operational agility, innovation, and customer satisfaction in the banking sector (AlZakwani et al., 2025; Maabreh, 2024). On the other hand, the path from Digital Transformation to Banking Operational Performance also shows a positive and statistically significant correlation (coefficient = 0.260, $p = 0.001$). Although it is expected that the impact of the Digital Transformation of the banks will be less than that of the FinTech Adoption, the impact should also be acknowledged. It indicates that initiatives focused on the digital transformation of the processes of automation, cloud-based banking, and data-driven management are fundamental to improvement in the processes in regards to the dimensions of effectiveness, responsiveness, and cost efficiency.

Table 4: Path coefficients results

Path		Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
Digital Transformation -> Banking Operational Performance		0.260	0.253	0.077	3.380	0.001
FinTech Adoption -> Banking Operational Performance		0.572	0.579	0.073	7.795	0.000

Both of the hypotheses were confirmed, which means that the assimilation of FinTech as well as the evolution of digital transformation correlate positively with the performance of the operations of the banks. The T-statistic values of 3.380 and 7.795 are more than the critical value of 1.96 at a confidence level of 95%. The findings' reliability is confirmed. Moreover, the value of R^2 , which is 0.620, is attributed to Banking Operational Performance (Figure 3), which means the Adoption of FinTech and the Digital Transformation Operational performance is modelled as explaining 85.6% of the variance to be significant. This means that the model is very good. In the digital era, banks are successful to a great extent, and the ability, FinTech innovations and Digital Transformation of the banks are pivotal. This is where we have the evidence, and it is clearly indicated in our study that the financial institutions, as a result of the technology, can innovate with greater servant agility, enhanced quality of service, and improved cost (Lootah, 2024). The results further developed the emerging body of knowledge, which claims that the Digital Transformation, as the framework, provides the basis for Competitive Advantage, while the adoption of FinTech enables Operational Excellence. In short, the structural model confirmed Hypotheses 1 and 2 as true, which means the effects of FinTech Adoption and Digital Transformation on Banking Operational Performance were significant and positive.

5. Discussion

The findings of this study provide robust empirical support for the positive impact of FinTech adoption and digital transformation on banks' operational performance. Specifically, the results indicate that FinTech adoption has a substantial and statistically significant effect on operational performance ($\beta = 0.572$, $p < 0.001$), suggesting that FinTech is not merely a peripheral innovation but a central driver of efficiency, risk reduction, and customer-centric service delivery. These results align with prior research highlighting FinTech's role in accelerating transaction processes, reducing operational costs, and enhancing customer satisfaction through automated services, advanced data analytics, and mobile technologies (Maabreh, 2024; Al-Zakwani et al., 2025). By leveraging FinTech, banks can deliver personalized financial services at scale, minimize operational losses, and improve decision-making

speed and accuracy within their digital ecosystems.

Similarly, digital transformation positively and statistically significantly affects operational performance ($\beta = 0.260$, $p < 0.01$), but its effect is weaker than that of FinTech adoption. This is due to the fact that FinTech solutions (like mobile banking, AI analytics, and blockchain applications) offer direct and obvious benefits on transaction time response, customer service, or process automation. By contrast, digital transformation embodies much bigger organizational changes such as process reengineering, staff training and IT infrastructure integration that take time and resources to be truly operationalized and deliver measurable improvements. Whereas, the banking environment in Jordan seems to remain in the middle ground of digital maturity with legacy systems, fragmented processes and limited organizational alignment hindering optimum benefits reaping from digital transformation for most institutions. Thus, although digital transformation creates a framework for future-scale operating efficiency, the initial contribution to operational performance appears lower than that of more focused, quickly implementable FinTech initiatives. These findings highlight the strategic interplay between FinTech adoption and digital transformation. FinTech provides immediate operational benefits, but digital transformation enables organizational capabilities that sustain and scale these benefits for long-term competitive advantage.

Managerially, these findings highlight the importance of viewing FinTech adoption as an integrated component of digital transformation rather than as an isolated initiative. Effective integration requires aligning technology deployment with governance mechanisms, enhancing digital culture, and training personnel to support process improvements. As noted by Lootah (2024), sustainable operational performance is achieved when digital initiatives are embedded at the institutional level, supported by adaptable IT infrastructure, and guided by proactive leadership. Thus, this paper contributes to the literature by demonstrating that the synergistic interaction between FinTech adoption and digital transformation is crucial for operational excellence in banking. It provides both theoretical and practical insights, showing that technological innovation alone is insufficient unless coupled with organizational readiness, institutional support, and digital maturity.

6. Conclusion

Drawing on empirical data from the banking sector in Jordan, this study explores how FinTech adoption and digital transformation influence operational performance. Results showed that the constructs explained 62% of the model variance ($R^2=0.620$), with both constructs affecting operational performance and being positive in nature. In particular, FinTech enablement has an immediate and direct impact on operational efficiency, service accuracy, and customer engagement, while digital transformation provides the strategic and physical underpinnings to realize and sustain these benefits over time. The findings add to the literature on technological innovation and operational performance, offering empirical evidence for the Dynamic Capabilities Theory in a financial context. From the managerial perspective, our findings highlight that the best operational outcomes are obtained when FinTech initiatives are deployed as part of a wider digital transformation strategy that integrates technology, organization and human resources efficiently. From an operational perspective, banks should focus on enhancing digital capabilities, building a culture that embraces technology adoption and ensuring organizational readiness to convert investments made in all things digital into real improvements in operations. To design regulatory frameworks that foster innovation while providing operational stability, policymakers and regulators may also benefit from understanding the relationship between FinTech adoption and digital transformation. Last but not least, we show that adopting FinTech alone is insufficient and that, without broader digital transformation efforts, it will only lead to momentary performance gains. Further research can expand on these findings by integrating moderating factors (e.g., organizational culture, regulatory environment, cybersecurity preparedness, cross-country comparisons) to provide a more nuanced understanding of the complexities of digital banking ecosystems.

7. Limitations and Future Research

While conducting this study, several limitations emerged, which are presented here. To start, a cross-sectional study limits causal inference. For future studies, this may be more effectively captured through longitudinal studies. Next, self-reported data tends to elicit a response bias. Future studies can combat this by utilizing objective measures for performance, as well as multi-source data. Third, empirical studies focus more on Jordanian banks, and so this limits generalizability. For this reason, Jordanian banks should be the focus of more cross-country as well as comparative studies.

Moreover, this particular study only considered examining direct relationships. Other relationships may hold more salient explanatory mechanisms, making this an aspect of future research that could further improve the study. When this is achieved, the operational performance of bank services may be reflected more explicitly and dimensionally.

References

- Abueid, A. I., Mohammad, A. A. S., Almomani, H. M., Mohammad, S. I., Vasudevan, A., Almohaimmeed, B. M., ... & Saraireh, S. (2025). Strategies for Successful Digital Transformation in the Jordanian Banking Sector: Leveraging FinTech for Enhanced Customer Engagement. In *Artificial Intelligence, Sustainable Technologies, and Business Innovation: Opportunities and Challenges of Digital Transformation* (pp. 401-414). Cham: Springer Nature Switzerland.
- Al Azzam, F. A. F., Alshunnaq, M. F. N., Lesko, N., Lukianova, H., & Smotrych, D. (2022). The main threats in the practice of a lawyer to ensure environmental safety in the context of COVID-19. *International Journal of Safety and Security Engineering*, 12(3), 387-393.
- Alazzam, F. A. F., Liubokhynets, L., Kirichenko, O., Struk, N., & Bosak, A. (2023). Evaluating the impact of transport and logistics potential on international trade. *International Journal of Transport Development and Integration*, 7(4).
- AlJabali, A. M. A., Jarah, B. A. F., Alshehadeh, A. R., & Al-khawaja, H. A. (2025, April). The Role of Artificial Intelligence in Enhancing Financial Technology Cybersecurity in Jordanian Banks. In *Conference on Sustainability and Cutting-Edge Business Technologies* (pp. 107-116). Cham: Springer Nature Switzerland.
- Al-Jamal, W. Q., Pitchay, S. A., Ridzuan, F., & Noor Azam, M. H. (2025). Cancer classification challenges in high-dimensional microarray data: An in-depth exploration of machine learning models. *Malaysian Journal of Science, Health & Technology*, 11. [Special Issue on the 5th International Conference on Recent Advancements in Science and Technology (ICoRAST 2025): Responsible Artificial Intelligence – Advancing Science and Technology for Humanity]. <https://doi.org/10.33102/mjosht.531>
- Al-khawaja, H., AbuBaker, S., & AlZu'bi, S. (2025). Financial Technology and its Role in Enhancing Digital Services in the Jordanian Commercial Banks. *Al-Basaer Journal of Business Research*, 1(1).
- Almarashdah, M. A., Gharaibeh, Z. I. Y., Sial, M. S., Tahir, M., & Gandolfi, F. (2024). The nexus of good e-governance, e-trust, and digital citizenship behaviour: a perspective of emerging economies. *International Journal of Electronic Governance*, 16(4), 468-489.
- Almatarneh, Z. E. Y. A. D., Alslihat, N. I. M. E. R., Ineizeh, N. I., Hussein, O. J., & Jarah, B. A. F. (2024). Literature review related to the accounting information system and performance in Jordanian Companies. *WSEAS Transactions on Business and Economics*, 21, 2389-2398.
- Almatarneh, Z., Zaqeeba, N., Jebiril, I., & Jarah, B. A. F. (2023). The role of financial accounting technology in improving customer relationship management in Jordanian banks. *Asian Economic and Financial Review*, 13(12), 1008.

- Almuhairat, A., Alti, A., & Annane, B. (2025). Unified Central Bank Blockchain for Improving Accounting Bank Performance in Jordan. *Security and Privacy*, 8(2), e70022.
- Alnsour, I. R., Al-Nsour, I., Malkawi, E. M., & Allahham, M. I. (2025). The Role of Internet of Things in Fintech Adoption Within Banking Sector: The Moderating Role of Digital Transformation Capability. *Lex Localis- Journal of Local Self-Government*, 23, 2486-2510.
- Alrawashedh, N. H., & Shubita, M. F. (2024). Impact of digital transformation on the organization's financial performance: A case of Jordanian commercial banks listed on the Amman Stock Exchange. *Banks and Bank Systems*, 19(1), 126.
- Alroud, S. F. (2025). Digital Transformation as a Moderator: A Study of the Impacts of Sustainability Reporting Disclosure on Financial Reporting Quality in the Jordanian Banking Sector. *Economics-Innovative And Economics Research Journal*, 13(2), 389-413.
- Alseikh, A. S. H., Al-Zaqeba, M. A. A., & Muhammad, I. (2026). The role of artificial intelligence in reducing tax evasion: An implementation strategy. *Corporate and Business Strategy Review*, 7(1), 112–122. <https://doi.org/10.22495/cbsrv7i1art10>
- Al-Shawabkeh, I. K. (2020). Legal guarantees for objective performance evaluation of the federal public employee in the UAE legislation. *The Lawyer Quarterly*, 10(3).
- AlZakwani, M. H. H., Al-Zaqeba, M. A. H., Bashatweh, A. D., Al-Refai, O., & Abdo, K. K. (2025). The effect of sustainable development goals and fintech adoption on financial reports quality in Jordanian Islamic banks. *Int. J. Innov. Res. Sci. Stud*, 8(1), 1874-1889.
- Aryasari, M., & Usman, B. (2024). Exploring the Impact of Digital Transformation and Banking Factors on the Financial Performance of Conventional Banks Listed on the Indonesian Stock Exchange. *Jurnal Ekonomi, Bisnis & Entrepreneurship (e-Journal)*, 18(2), 733-756.
- Chao, N., Zhou, Y., & Yang, H. (2024). How does digital transformation affect the profitability of rural commercial banks?. *Heliyon*, 10(8).
- Dahiyat, E. A. R. (2017). A legal framework for online commercial arbitration in UAE: new fabric but old style!. *Information & Communications Technology Law*, 26(3), 272-292.
- Danh, L. X., & Nguyen, T. L. (2025). The impact of digital transformation, corporate social responsibility and market orientation on firm performance: Evidence from vietnamese commercial banks. *Business Management*, 1, 25-49.
- Gharaibeh, Z. I. Y., Alazzam, F. A. F., Salih, A. J., & Aldrou, K. K. A. R. (2024). Examining challenges and prospects associated with implementing legal protections for electronic governances: a generic perspective from developing country. *BBR. Brazilian Business Review*, 21(5), e20231773.
- Gharaibeh, Z.I.Y. (2024). Impact of criminal offense in the economic field on the level of financial security: formation of a modern approach in case of Jordan. *Financial and credit activity problems of theory and practice*, 2(55), 474-487.
- Hailat, K. Q., Jarah, B. A. F, Mefleh Al-Jarrah, M. F., & Almatarneh, Z. (2023). The impact of electronic banking services on the use of technology by customers of conventional and Islamic banks in Jordan. *International Journal of Data & Network Science*, 7(2), 737–744.
- He, Q., Tong, Z., Mai, H., Shen, Y., & Jiang, J. (2025). Digital Transformation and Profitability in Rural Commercial Banks. *Finance Research Letters*, 107867.
- Huy, N. Q., & Tam, P. T. (2025). Applied Data Science for Analyzing the Mediating Role of Digital Transformation Influencing Banking Business Efficiency in Vietnam. *Journal of Applied Data Sciences*, 6(3), 2031-2045.

- Jarah, B. A. F. (2025). The Role of Corporate Governance on the Development of Accounting Information Systems in Jordanian Companies: Organizational Performance as a Moderating. *Salud. Ciencia Y Tecnología*, 5, 1533.
- Jarah, B. A. F., Alghadi, M. Y., Al-Zaqeba, M. A. A., Mugableh, M. I., & Zaqibeh, B. (2024). The influence of financial technology on profitability in Jordanian commercial banks. *Humanities and Social Sciences Letters*, 12(2), 176-188.
- Jarah, B. A. F., Alzubi, E. A., Khwaileh, K. M., Ebbini, M. M., Alqudah, M. M., & Jaradat, M. S. (2025). The Impact of Legal Auditors on Financial Reports Quality in Jordanian Companies. *International Review of Management and Marketing*, 15(2), 60.
- Jingrong, H., Shan, H., Zhaobin, C., Yu, L., & Yingying, L. (2024). Ai-driven digital transformation in banking: A new perspective on operational efficiency and risk management. *Information Systems and Economics*, 5(1), 82-90.
- Le, D. M., Pham, T. T., Pham, T. H. N., Luu, G. L., & Pham, T. M. (2025). The impact of digital transformation on the operational efficiency of commercial banks in Vietnam. *ISA Journal of Business, Economics and Management (ISAJBEM)*, 2(4), 409-419.
- Lootah, R. E. A. (2024). The impact of blockchain technology on financial reporting practices in UAE. *International Journal of Digital Accounting and Fintech Sustainability*, 1(1), 2-12.
- Maabreh, H. M. A. (2024). The role of financial technology (fintech) in promoting financial inclusion a literature review. *International Journal of Digital Accounting and Fintech Sustainability*, 1(1), 2-12.
- Mwenda, D., & Muthimi, J. (2025). Organizational performance of commercial banks in Kenya: The paradoxical effects of the digital transformation strategies. *International Journal of Education and Research*, 13(5), 45-70.
- Porfirio, J. A., Felício, J. A., & Carrilho, T. (2024). Factors affecting digital transformation in banking. *Journal of Business Research*, 171, 114393.
- Probojakti, W., Utami, H. N., Prasetya, A., & Riza, M. F. (2025). Driving sustainable competitive advantage in banking: The role of transformational leadership and digital transformation in organizational agility and corporate resiliency. *Business Strategy and the Environment*, 34(1), 670-689.
- Qatawneh, N. (2024). Empirical insights into business intelligence adoption and decision-making performance during the digital transformation era: Extending the TOE model in the Jordanian banking sector. *Journal of Open Innovation: Technology, Market, and Complexity*, 10(4), 100401.
- Rashwan, A. R. M. S., & Kassem, Z. A. E. A. (2021). The role of digital transformation in increasing the efficiency of banks' performance to enhance competitive advantage. In *The big data-driven digital economy: Artificial and computational intelligence* (pp. 325-335). Cham: Springer International Publishing.
- Shakhatreh, H. J. M., Alazzam, F. A. F., Vashchyshyn, M., Shparyk, N., & Gontar, Z. (2023). Methodological approach for developing legal frameworks to protect land relations in homeland security. *International Journal of Safety and Security Engineering*, 13(3), 501-507.
- Shehadeh, M., Almajali, D., Abu-AlSondos, I. A., Alkhwalidi, A. F., & Al-Gasaymeh, A. S. (2023, March). Digital transformation and its impact on operational efficiency and competitive advantage in Islamic banks. In *2023 international conference on business analytics for technology and security (ICBATS)* (pp. 1-6). IEEE.
- Siswanti, I., Riyadh, H. A., Cahaya, Y. F., Prowanta, E., & Beshr, B. A. H. (2024). Unlocking sustainability: exploring the nexus of green banking, digital transformation, and financial performance with foreign ownership moderation. *Discover Sustainability*, 5(1), 379.

Tran, P. T. T., Le, T. T. H., & Hang, N. P. T. (2023). Digital transformation of the banking industry in developing countries. *International Journal of Professional Business Review: Int. J. Prof. Bus. Rev.*, 8(5), 8.

Yue, D. (2024,). How does digital transformation reshape the operating performance of listed banks. In *Proceedings of the 2024 5th International Conference on Big Data Economy and Information Management* (pp. 812-817).