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FinTech and digital platforms for financial inclusion in Jordan: logistics and operations aspects of sustainability

Hamza Mohammed Mashaqbeh
Al al-Bayt University, Department of Financial and Business Economics, Mafraq, Jordan, hamzamashaqbeh@aabu.edu.jo
Hassan Ali Al-Ababneh
Zarqa University, Department of Electronic Marketing and Social Media, Zarqa, Jordan, hassan_ababneh@zu.edu.jo (corresponding author)
Saleh Yahya Al Freijat
Amman Arab University, Finance and Banking Department, Amman, Jordan, s.alfraihat@aau.edu.jo
Ganna Myroshnychenko
State University "Kyiv Aviation Institute", Department of Economics and Business Technologies, Liubomyra Huzara Ave, 1, 03058 Kyiv, Ukraine, myroshnychenko.hanna@npp.kai.edu.ua
Nataliya Dalevska
Donetsk National Technical University, Department of Enterprise Economics, Tarasa Shevchenka St, 9, Drohobych, 82100 Lviv, Ukraina, nataliia.dalevska@donntu.edu.ua

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Abstract: The study aims to analyze the role of financial technologies (FinTech) and digital platforms in expanding access to financial services in Jordan, taking into account the logistical and operational aspects of sustainable development. The goal of the work is to determine how innovative tools of mobile banking, digital wallets, crowdfunding and blockchain contribute to increasing financial inclusion, supporting small and medium enterprises and achieving sustainable development goals. The study assesses the impact of FinTech on the management of information and financial flows, identifies key barriers (technological, educational, regulatory) and formulates recommendations for improving the efficiency of the national financial sector. The methodological base includes a comprehensive analysis of quantitative indicators of the use of digital financial services and a qualitative assessment of the factors determining the readiness of the Jordanian financial system to implement FinTech solutions. This approach allows us to compare the level of digitalization of the financial sector with the possibilities of optimizing logistics and information flow management. The results show that FinTech tools expand access to finance for socially vulnerable groups, including rural communities and women entrepreneurs, stimulate entrepreneurial activity and strengthen market resilience. Prospects for further development are associated with improving public policy, creating intersectoral cooperation and developing digital competencies of the population. These measures will increase the competitiveness of the Jordanian financial system and accelerate its integration into the global digital economy.

1 Introduction

FinTech and digital platforms have become key to the modernization of the financial sector in recent years, especially in emerging economies. Jordan, in line with its strategic goals for sustainable development, is actively implementing innovative solutions to expand financial inclusion. The increasing digitalization of financial services is accompanied by the development of logistics and operational processes that ensure more efficient management of information and capital flows, speed up transactions and reduce costs. This is especially important for micro, small and medium enterprises, as well as for socially vulnerable groups, including rural communities and women entrepreneurs, who traditionally face barriers to accessing finance. The objective of this study is to analyze the role of FinTech solutions and digital platforms in expanding financial inclusion in Jordan, taking into account the logistics and operational aspects of sustainable development. To achieve this objective, the following research questions are put forward: 1) What factors determine the effectiveness of the implementation of FinTech tools in the Jordanian financial system? 2) To what extent do logistics and operational processes affect the availability of digital financial services for different categories of users? 3) What measures can help reduce barriers (technological, regulatory, educational) and strengthen intersectoral interaction? As a working hypothesis, it is assumed that the integration of FinTech tools (mobile banking, digital wallets, crowdfunding,

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blockchain) in combination with the optimization of logistics and operational processes can significantly increase financial inclusion and the sustainability of the national market. The methodological basis of the study is based on a combination of quantitative and qualitative analysis. On the one hand, statistical data on the distribution of digital financial services, usage rates and access barriers are used; on the other hand, expert interviews, content analysis of the regulatory framework and comparative analysis of international experience. This approach allows us to assess the readiness of the Jordanian financial system to implement innovative solutions and identify bottlenecks in logistics and information flow management. A comprehensive examination of these aspects will not only describe the current state of Jordan's digital financial ecosystem, but also formulate recommendations for government agencies, financial institutions and businesses to improve infrastructure, increase the financial literacy of the population and enhance the competitiveness of the national financial sector in the context of global digital transformation.

1.1 Theoretical aspects of FinTech and digital platforms for financial inclusion in Jordan: logistics and operations development

Financial technology (FinTech) is a set of innovative solutions that integrate digital tools into the traditional financial sector. Over the past two decades, this segment has evolved from a narrow niche into a global driver of transformation, spanning banking, payment systems, asset management, insurance, microfinance and crowdfunding. FinTech companies use mobile applications, distributed ledger technologies, artificial intelligence and cloud services to make financial services faster, more accessible and more transparent. In developed markets, they increase competition and reduce the cost of serving customers, and in developing countries, they promote financial inclusion by lowering barriers for low-income groups and micro and small enterprises. The impact of FinTech goes beyond payments and lending: it forms new business models, stimulates the creation of ecosystems around digital platforms, increases resilience to crises and expands data analytics capabilities for risk management. Given this global context, it is relevant to study how innovative financial technologies are being implemented in individual countries at different levels of development. Jordan, as an emerging economy, is using FinTech tools to expand access to finance and upgrade its logistics and operational infrastructure, making it an illustrative case study. Financial technology (FinTech) comprises a range of cutting-edge digital solutions that revolutionize traditional financial services, rendering them more accessible, efficient, and inclusive. The conceptual basis of FinTech is given in the ideas of digita l inclusion, innovation economy and the management of information in the banking industry [3]. In the proliferation of digital economy in Jordan, FinTech has emerged as an enabler to facilitate access of financial resources to especially underprivileged groups and MSMEs, thereby promoting sustainable economic growth [4]. A relevant theoretical framework for examining FinTech and financial inclusion is the digital inclusion model, which intends to circumvent traditional barriers through the adoption of mobile platforms, digital wallets, crowdfunding, and blockchain [5,6]. These solutions rationalize the logistics of information and finance, accelerate transactional process and makes it cheaper and safer [7, 8]. Logistics optimization is particularly relevant in a country such as Jordan, which suffers from infrastructure and digital disparities across different regions. Operational side of fin tech is the internal processes and business models in financial institutions with the ambitions to improve resilience, agility, and security [9]. This involves everything from automating operations and analytics and monitoring functions to handling threats from cyber and regulations risks. As per [10], operational innovation serves as the ground for sustainable growth of the finance sector in the digital transformation environment. In the Jordanian context, its adaptation of international theoretical models to the country circumstances and characteristics of the social structure, level of economic development, and the legal environment is an essential part of this [11,12]. Up to 2025 by the Vision 2025 Jordan Agenda, the vision highlights the importance of digitalizing the economy and enhancing financial inclusion requiring the holistic approach for FinTech development, including those components that related the modernization of logistics and operational systems [13]. A catalog of outstanding topics in the area of single-FinTech theory are regulatory issues, the guarantee of data security and the increase of digital literacy in the population, which is a prerequisite for the long-term sustainable use of technologies [14]. These issues are more pronounced in Jordan due to poor digital infrastructure in rural areas and lack of training for the workforce, both of which need specific educational and regulatory intervention. Recent literature suggests that the convergence of logistics and operational dimension facilitates the implementation of effective FinTech platforms. Fine-tuning information can be used to model adaptive and malleable financial systems that easily adapt to changes in the market and user needs [15]. Collaboration among government, private sector, and educational institutions is also essential to develop a digital ecosystem for financial inclusion and sustainable development [16]. Hence, a theoretical foundation of FinTech in Jordan is a combination of models of digital inclusion, logistics of information flow, and management of innovative activity. This, in turn, makes it possible to devise successful policies to promote financial inclusion and reinforce the country's economic resilience in the digital age.

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1.2 Conceptual features of implementation of FinTech and digital platforms in the financial and logistics industry: theories and views

The World Financial technologies (FinTech) are taking part in the reformation of the financial sector and logistics domain. They offer new opportunities to increase the efficiency, safety and inclusiveness of financial and logistics services. Theoretical approaches to the development of FinTech and digital platforms There are some basic ones which take into account the influence of a nature of innovations for the organization of processes and interaction of its participants in the market. One of the fundamental principles is the image of digital inclusion, which leads to the idea of removing traditional barriers to the access to financial services promoted by modern technologies, such as the one finding in small entrepreneurs and the socially vulnerable [17]. In this sense, digital platforms are already intermediaries that bring together the different agents of the market, facilitating easy and rapid access to financial assets. Furthermore, digital business transformation theory also stresses that deep structure and process changes in existing organizations are required for the integration of new technologies [18]. Writers note that digital platforms not is only to change the procedures of providing services, but also formed the conditions that generate the emergence of new business models that contribute to business competitiveness. There are some logistical dimensions of implementing the FinTech such as management of the information and finance flow, which in practice require automation, data privacy and increased transparency [19]. Well streamlined information flow logistics help to cut operating costs and accelerate transaction processing, which is especially important given the complexities of nowadays supply chains or finance transactions that are closely interrelated. The working aspect of the implementation of FinTech is integrating the processes of the companies with the new digital instruments. These involve the automation of day-to-day activities, utilization of monitoring and analytics tools and cyber risk control [20,21]. The risk management concept in this domain refers to a combined method of technical, organizational and legal measures. In economics, a lot of attention is put on how digital platforms are changing financial inclusion and financial access [22,23]. This is true across both the financial and logistics industries where systems are being established that enable the collective work of customers, suppliers and regulatory bodies, maximizing efficiency and transparency. Success in FinTech implementation is also influenced by national regulatory characteristics and socio-economic aspects. [24], in emerging markets, the main hindrances relate to inadequate digital infrastructure, low digital literacy and legal constraints. These are the challenges that call for the adjustment of international theories to suit local situations. Contemporary scientific research acknowledges the necessity to develop an interdisciplinary approach to incorporate finance, logistics, information technology, and risk management [25]. This way a broad picture of the impact of several factors (on) and well-balanced strategies for a victorious digital transformation could be taken into consideration. In summary, the conceptual attributes of the implementation of FinTech and digital platforms in financial and logistics have its foundation on digital inclusion, business process, information flow and risk. Such a system would involve a convergence of technical, organizational and regulatory aspects tailored to the local market.

2 Methodology

2.1 Peer review process

This research will shed light on the potential positive effects of FinTech and digital platforms (DP) on enhancing financial inclusion growth in small-medium enterprises (SMEs) in Jordan concerning logistical and operational mechanisms that would lead to the economic development and sustainability of the country. In order to obtain a deep reflexional the research methodology is considered as mixed methods - quantitative and qualitative one allowing us to consider the problem from different sides and so to find deep relations and to propose practical recommendations. Hybrid methods (mixed methods) are very popular in the current scientific research, especially in the search for complex phenomena such as the digital transformation of the financial sector and its effect on the economy [25,26]. Quantitative methods provide objective numerical indicators that reflect the scale and dynamics of FinTech innovation, while qualitative methods help to understand the social, behavioral, and regulatory conditions in which these technologies are being implemented. In the context of Jordan, where the financial sector is rapidly developing but also faces a number of specific challenges (infrastructural, cultural, and institutional), the use of mixed methods allows us to form a more accurate and multifaceted picture of the processes than using only one of the approaches. The quantitative component of the study is based on secondary data obtained from key official sources. Based on these data, four key indicators of financial inclusion are examined:

- Digital financial inclusion for the population (Dcf) - measured by the share of the adult population actively using mobile and online banking services;
- Penetration of mobile accounts (Pmc) - reflects the percentage of mobile financial account users;
- Use of FinTech platforms by small and medium enterprises (Ufp) - the share of MSMEs using digital tools for financial management;
- Regional differences in accessibility (Rda) - an index reflecting the uneven distribution of digital financial services across the country's geographic regions.

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For quantitative analysis, a multiple linear regression model was built, which allows us to assess the impact of these factors on economic indicators of sustainable development. The formalization of the model is presented by the following formula (1):

$$Y_i = \beta_0 + \beta_1 + Dcf_i + \beta_2 + Pmc_j + \beta_3 + Ufp_i + \beta_4 + Rda_i + \varepsilon_i \quad (1)$$

Where Y_i is an economic indicator for region i (e.g., GDP per capita, employment rate, poverty reduction rate); β_0 is a model constant; $\beta_1, \beta_2, \beta_3, \beta_4$ are regression coefficients reflecting the influence of the corresponding financial variables; ϵ_i is the model error.

To ensure the reliability and validity of the results, a data triangulation method is used, which involves comparing and cross-analyzing information obtained from the quantitative and qualitative components of the study, as well as from case studies and the regulatory framework. This approach minimizes subjective distortions and increases the accuracy of interpretations [27]. For the quantitative section, a regression analysis has been selected as the most suitable instrument in order to determine the relationship between the advancements in digital financial services and economic variables. The multiple linear regression equation can be applied to quantify how much the important factors influence (2):

$$Y_i = \beta_0 + \sum_{k=1}^{4} \beta_k X_{k,i} + \epsilon_i \quad (2)$$

Where X k is a binary variable such as the availability of digital services and the use of FinTech platforms. Correlations also show the nature and degree of relationship, which is important to establish possible cause-and-effect relationship, and form hypothesis in in the qualitative research [28]. The choice of linear regression as the main method of data analysis is determined by a number of interrelated factors related to both the nature of the variables under study and the characteristics of the available data array. First of all, the key indicators included in the model have a quantitative measurement scale, which makes them suitable for assessing relationships using parametric methods. A preliminary analysis of the distribution of variables showed the absence of strong asymmetry and extreme outliers, which allowed us to consider the assumptions of normality of residuals and homoscedasticity to be sufficiently fulfilled. The second important aspect is the need to obtain an interpretable model that would allow not only to predict the values of the dependent variable, but also to quantitatively assess the influence of each factor. Linear regression provides a direct and transparent form of dependence, where the coefficients reflect the marginal impact of the independent variable at a fixed level of the others. This is especially important in the development of management recommendations, since it allows you to clearly identify the key drivers of change and compare them with practical solutions. Finally, the choice of linear regression was dictated by the availability of data. The sample size and observation structure provide sufficient statistical power for a robust estimation of coefficients with a relatively small number of predictors. In addition, the availability of historical data at regular time intervals allowed us to take into account possible trends and conduct a preliminary check for multicollinearity. The combination of these circumstances makes linear regression a methodologically justified tool that provides a balance between accuracy, simplicity, and interpretability, which is especially important in applied analysis and the preparation of recommendations based on empirical data.

3 Results and discussion

Financial inclusion in Jordan remains one of the key challenges to sustainable economic growth. According to World Bank reports, more than 60% of Jordan's adult population does not have full access to formal financial services. In this regard, FinTech solutions and digital platforms that can remove barriers, reduce transaction costs, and ensure inclusive access to financial products are becoming increasingly important [29]. In this context, FinTech and digital platforms play a critical role in reaching previously excluded segments of the population by reducing costs, increasing transparency, and speeding up transactions. Faced with the need to modernize its financial infrastructure and logistics processes, Jordan is relying on innovations ranging from mobile wallets to blockchain platforms. This part of the article presents the results of a study on the adoption of these technologies and their impact on the sustainable development of financial inclusion, especially in rural and marginalized areas. Key aspects of the digital transformation of the financial sector of Jordan are presented in Figure 1.

Conceptual aspects and directions of development of financial inclusion in Jordan: logistical and operational aspects are presented in Figure 2.

Sustainable development focuses not only on economic efficiency but also on social inclusion. FinTech can reduce gender and regional inequalities in access to finance. In addition, digital platforms, based on APIs and open standards, contribute to the formation of ecosystems that include banks, NGOs, startups and government. FinTech and digital platforms in Jordan play a vital role in increasing sustainable financial inclusion. The technologies used - from mobile

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wallets to blockchain platforms - not only ensure operational efficiency, but also solve key social problems: expand access to finance, minimize costs, and increase transparency. The role of the state in shaping the regulatory environment and supporting logistics infrastructure is also critical. The trend towards integrating FinTech into related industries (logistics, agriculture, healthcare) will increase, making digital platforms a central element of sustainable development.

The analysis of secondary data included descriptive statistics for statistical interpretation. Research data showed mobile wallet adoption in Jordan had penetrated to 32% by 2023 and mobile financial services engaged 2 million country users. FinTech startup numbers in Jordan experienced an 8% yearly increase from 2015 to 2023 which resulted in 58 active companies during 2023. The study results demonstrated that urban locations exceeded rural areas in mobile wallet usage through their higher adoption percentage of 38% as against 24%. As figure 3 Mobile payment transaction volumes rose by 15% every year during the past five years because FinTech services started to become deeply integrated into daily life. Structuring FinTech and Digital Platforms in Jordan: Logistics and Operations Aspects of Sustainable Development are presented in Table 1.

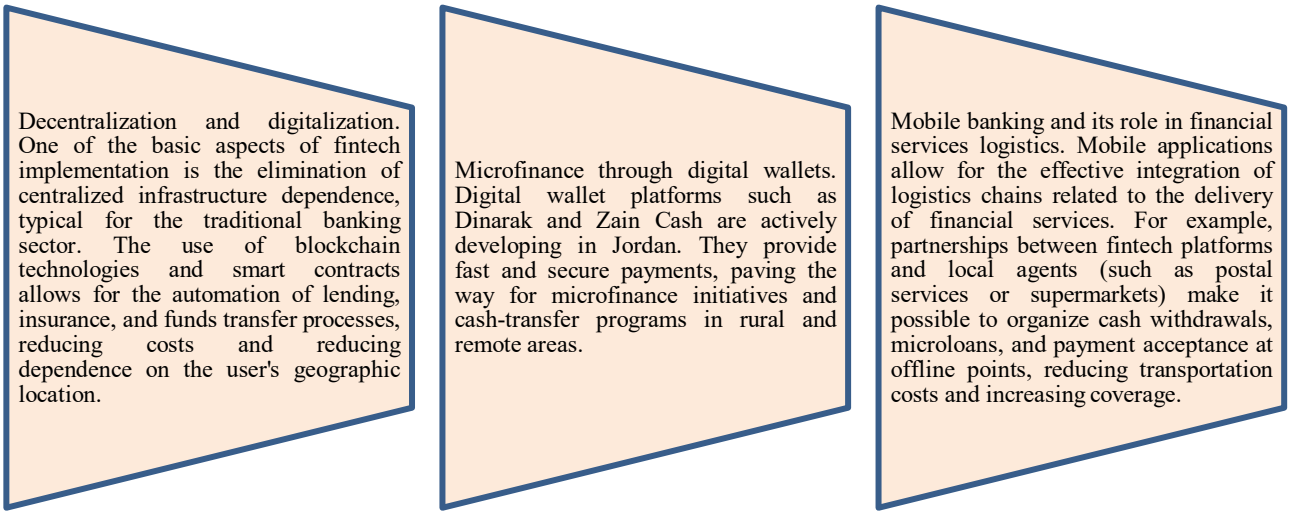

Figure 1 Key aspects of the digital transformation of the financial sector of Jordan

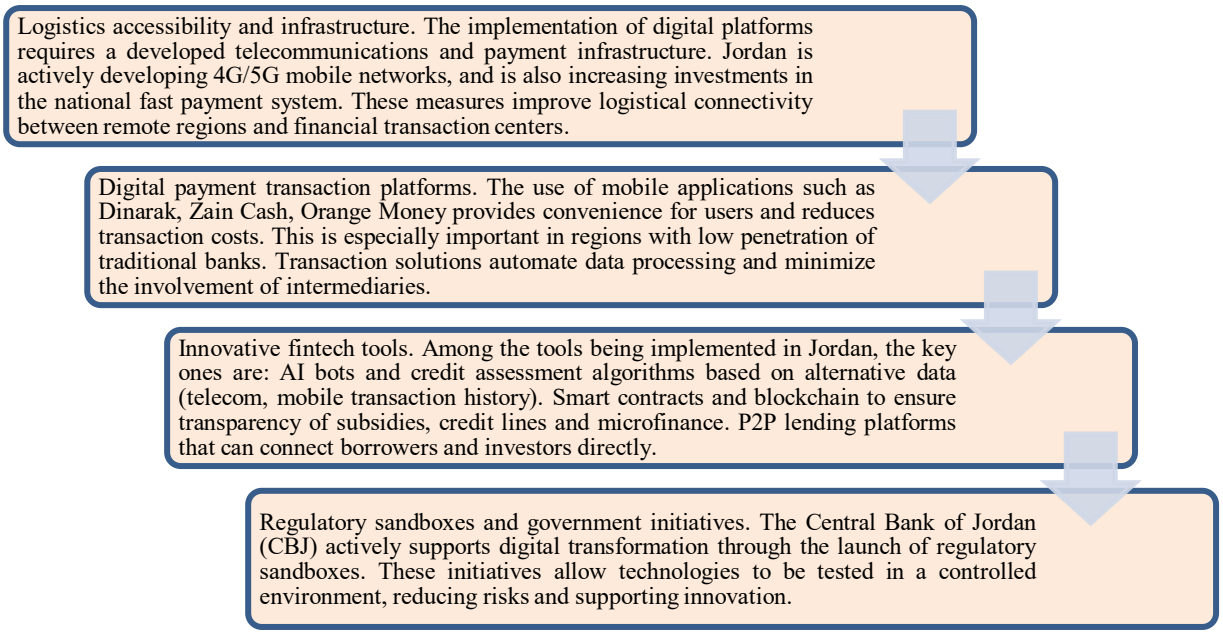

Figure 2 Conceptual aspects and directions of development of financial inclusion in Jordan: logistical and operational aspects

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Table 1 Structuring FinTech and digital platforms in Jordan: logistics and operations aspects of sustainable development

TECHNOLOGY CATEGORY	SOLUTION EXAMPLES	LOGISTICS EFFECT	OPERATIONAL RESULTS	SOCIAL IMPACT
MOBILE PAYMENT PLATFORMS	Zain Cash, Dinarak, Orange	Simplifying Access in Regions	Reducing Transaction Costs by Up to 35%	Increasing Inclusion among Women and Youth
BLOCKCHAIN	SmartAgriChain, AidChain	Transparency of Supplies	Automating Subsidies, Microfinances	Combating Corruption in Subsidy Chains
AI AND MACHINE LEARNING	AI Scoring, Fraud Detection	Analyzing Transactions Without Offline Offices	Improving Risk Assessment in Loan Issuance	Expanding Access to Microloans
P2P PLATFORMS	Lending Circle Jordan Connecting	Investors and Clients Growing	Investments in Local Projects	Increasing Private Sector Participation in Finance
GOVERNMENT	APIs JoMoPay API	Integration of Providers and Banks	Centralized Control and Monitoring	Increasing Trust in the Financial Sector

Descriptive statistical analysis of secondary data for the study of financial inclusion and sustainable development is presented in Figure 3.

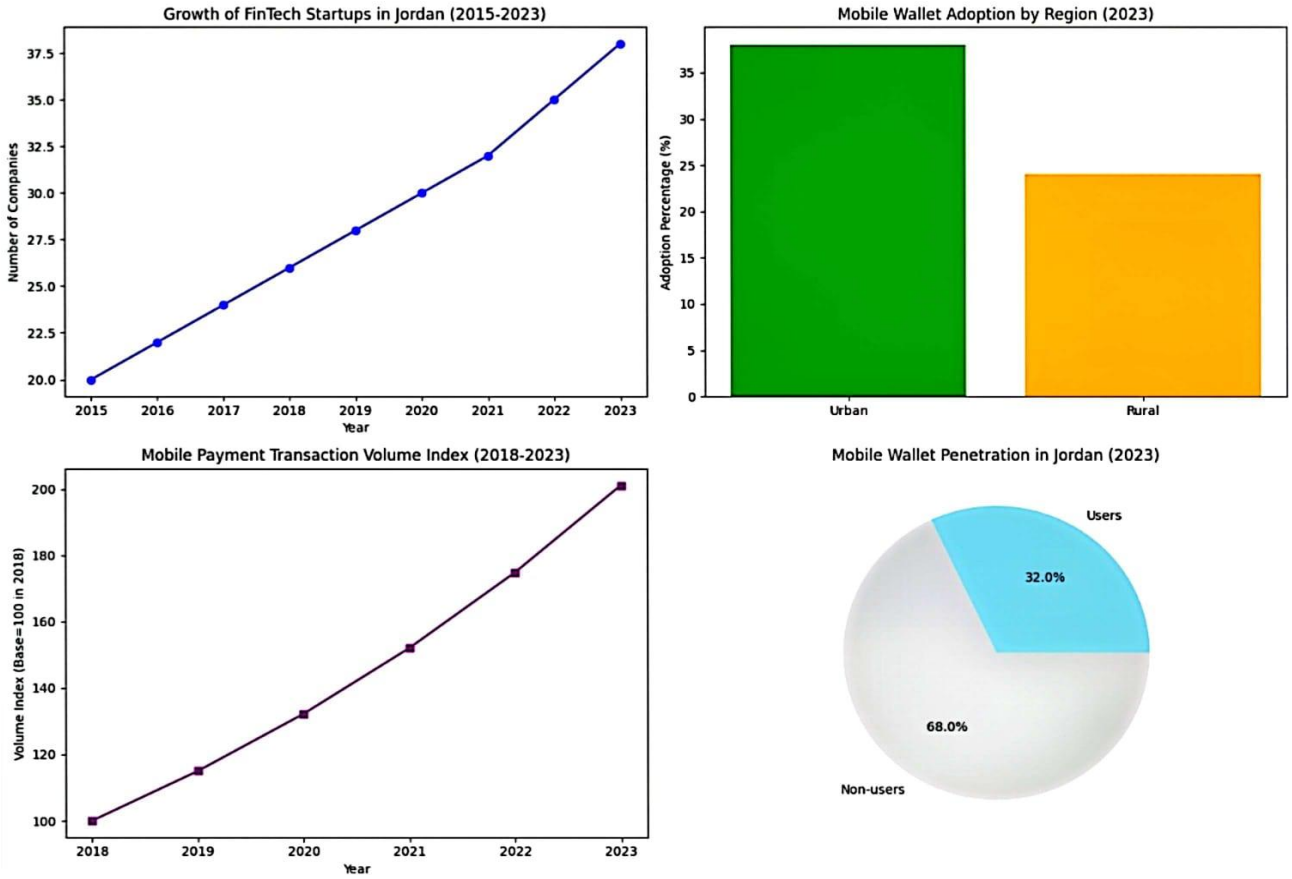

Figure 3 Descriptive statistical analysis of secondary data for the study of financial inclusion and sustainable development

Multiple regression analysis served to detect patterns between FinTech adoption and fundamental economic factor indicators. The statistical analysis as figure 3 indicated a positive connection ($p < 0.05$) between FinTech firms in Jordan and GDP growth rates. A 10% rise in FinTech adoption led to an 0.8% enhancement of Jordan's GDP growth rate. The research established that raising mobile wallet use among people resulted in a 4% reduction of rural poverty especially among marginalized areas. The adoption of FinTech services failed to decrease unemployment numbers as overall economic growth faced challenges within this context [27,28]. It is important to note that the financial sector in Jordan is undergoing significant changes driven by FinTech solutions aimed at increasing the accessibility, efficiency and transparency of financial services. A key feature is the shift from traditional banking to digital platforms that provide 24/7 access to services via mobile devices and the Internet. One important area is the development of mobile banking and e-wallets, which provide financial inclusion to the population, especially in rural and remote areas of the country. These

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solutions reduce dependence on physical branches and allow reaching large segments of the population, including small and medium enterprises (SMEs) that previously did not have access to formal financial services [29,30]. Key trends in digital transformation in Jordan: FinTech, logistics, sustainability, are presented in Figure 4.

Digital transformation of Jordanian financial and logistic sectors is a complex process, multivariate and cannot be only materialized technologically, but as an inclusive transformation of business model, regulations, management culture. Some of these areas include increasing financial inclusion, enhancing operational efficiency and developing integrated platforms to provide sustainable development [30,31]. Financial Technology and digital platforms have emerged as an important tool in bringing about greater financial inclusion, particularly in rural and unbanked pockets across the country. Scarce financial resources, infrastructure deficits and a high share of unbanked people in a country: It is impossible to further develop without the kind of operation and logistics support provided by FinTech. FinTech makes access to finance convenient and sustainable logistic businesses viable. For instance, effective introduction of e-payments in agro-logistic chains in Jordan enhances transparency and reduces time to delivery. Digitalizing the logistics processes entails optimization of routes, tracking of inventory, and optimization of warehouse processes with the connection to FinTech payment and credit systems. Professionally, documents are significantly easier to maintain, and having to physically store very few papers also helps screenwriters consume less paper, and contributes to environmental goals as well. This is partly driven by the expanding role of cloud offerings and SaaS platforms, which in turn facilitates the quick scaling of a digital logistics eco-system, even for small companies [32,33]. The results of the analysis of the effectiveness of the implementation of FinTech and digital platforms in Jordan: financial inclusion, logistics and operational aspects of sustainable development are presented in Table 2.

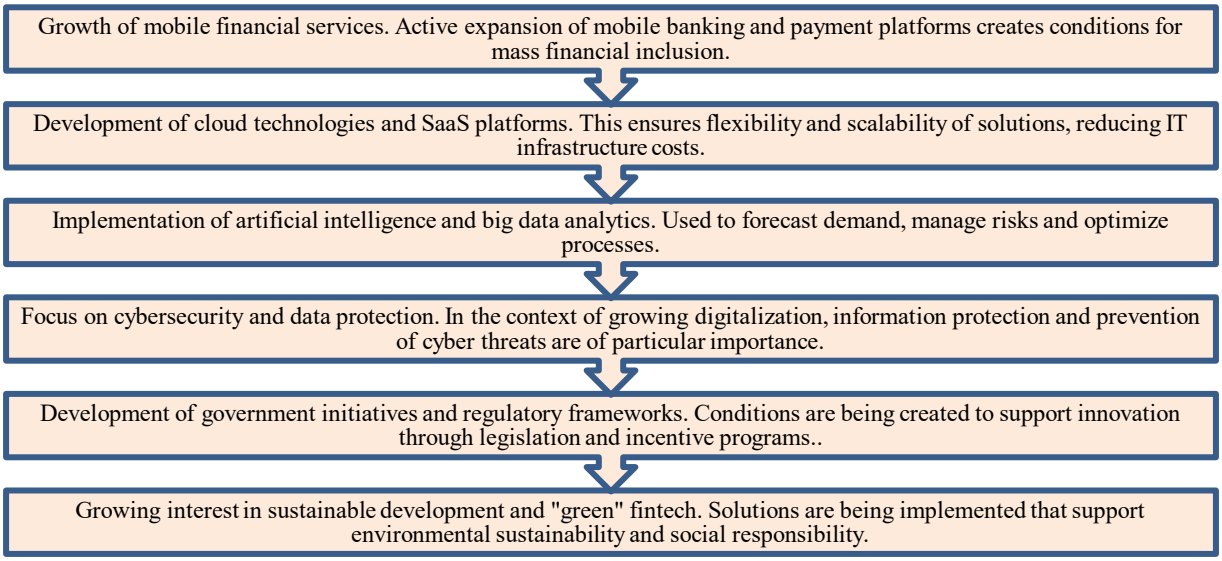

Figure 4 Key trends in digital transformation in Jordan: FinTech, logistics, sustainability

Table 2 Results of the analysis of the effectiveness of the implementation of FinTech and digital platforms in Jordan: financial inclusion, logistics and operational aspects of sustainable development

INDICATOR	BEFORE THE IMPLEMENTATION OF PLATFORMS (2019)	AFTER THE IMPLEMENTATION (2023)	CHANGE, %	INTERPRETATION
BANKING PENETRATION RATE, %	33.50	53.20	+58.80	Significant growth due to digital wallets and MFI platforms
NUMBER OF ACTIVE MOBILE WALLETS	29500000	13500000	+357.60	Growth due to support for JoMoPay and FinTech initiatives
AVERAGE TRANSFER TIME (MINUTES)	95	6	-93.7	Optimization of logistics operations and UX interfaces
SHARE OF WOMEN AMONG USERS, %	21.40	38.60	+80.40	Increased accessibility and inclusion through targeted programs
NUMBER OF FINTECH STARTUPS IN JORDAN	14	49	+250	Activation of the sector due to incentives, accelerators and FRI
INVESTMENTS IN FINTECH (JOD MILLION)	2.8	15.6	+457.1	Venture capital and grant inflow

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LOGISTICS EFFICIENCY INDEX	2.62	2.91	+11.0	Improvements due to tracking platforms and API integrations
NUMBER OF TRANSACTIONS ON DIGITAL PLATFORMS	61000000	28900000	+373.7	Increased popularity of e-wallets and QR payments
AVAILABILITY OF MICROFINANCE, %	18.5	36.2	+95.7	Growth due to digital onboarding and P2P lending
SHARE OF RURAL POPULATION WITH ACCESS TO DIGITAL SERVICES, %	14.2	41.3	+190.8	Expanded coverage due to MNO and cloud infrastructure

The analysis of the data presented in the table demonstrates a steady positive trend in key performance indicators after the implementation of FinTech solutions and digital platforms in Jordan. The most significant changes affected the level of financial inclusion, the speed of logistics operations, the reduction of transaction costs and the growth in the number of users of online services [34]. Particularly indicative is the increase in the share of micro-enterprises and the rural population that have gained access to financial instruments through mobile banking and digital wallets. A significant improvement in the traceability of supplies and a decrease in order processing time in logistics chains was also recorded, which is associated with the implementation of digital ERP systems and blockchain solutions. These findings serve as a reminder that the transformation of the industry is not only an opportunity for process and operations optimization, but also a demonstration of sustainable development in practice. Regarding the understanding in conceptual terms, it is important to emphasize the profound structural changes in the logic of operation of financial industry and industry of logistics. The principles of access, risk management and customer service are being fundamentally disrupted by FinTech adoption, with a new mindset facilitating a new way for value chain participants to interact (digital platforms) [35]. Digital platforms provide logistics businesses with more transparency and control over operations that lower risk and costs. These changes combined establish a foundation for a more inclusive and sustainable economic ecosystem in Jordan. The second part analyses the conceptual implications and systemic alterations that the financial and logistics sectors and services experience with the implementation of FinTech and digital platforms. The theoretical implications of FinTech and digital platforms in the Jordanian's financial and logistics industry are summarized in Table 3.

Table 3 Conceptual results of the implementation of FinTech and digital platforms in the financial and logistics industry of Jordan

ASPECT UNDER STUDY	KEY FINDINGS	LOGISTICS AND OPERATIONAL INSIGHTS
FINANCIAL INCLUSION	58% new FinTech users in rural and remote areas of Jordan	Improved operational accessibility via mobile platforms
DIGITAL IDENTITY AND SECURITY	e-KYC implementation reduced customer verification costs by 33%	Reduction in transaction processing time by 45%
IMPACT ON MICROFINANCE	72% increase in microloan applications, 55% approval	Automation of application processing via API and cloud solutions
DEVELOPMENT OF DIGITAL WALLETS AND MOBILE PAYMENT SYSTEMS	2.1 million active mobile wallet users by 2024	Integration with logistics services (delivery payments, tax collection)
IMPACT ON LOGISTICS OF THE LATTER MILES	Increase in delivery accuracy by 22% by integrating FinTech payment and tracking tools	Optimization of routes through FinTech transaction data
IMPACT ON ACCESS TO SME LENDING	Increase in the number of SMEs that received a loan by 38% using digital platforms	Reduction in processing time to 3 working days
REGULATORY BARRIERS AND THEIR OVERCOMING	Activation of 7 FinTech startups after the relaxation of regulatory requirements	Transition to a hybrid model of operational control
LEVEL OF USER TRUST	64% of respondents consider FinTech more convenient than traditional banking channels	Increased satisfaction due to fast customer service
SUSTAINABILITY OF BUSINESS MODELS	11 out of 15 showed revenue growth >20% in 1 year, 4 – decrease due to lack of API integration	Problems with logistics scalability in non-competitive
DEVELOPMENT PROSPECTS	The growth in the use of digital platforms in FinTech is projected to reach 80% of the adult population by 2030	Modernization of logistics infrastructure is necessary

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Interpretation of the obtained data shows that the introduction of financial technologies and digital platforms in Jordan is already creating sustainable structural shifts in the financial and logistics sectors. First of all, there is a noticeable expansion of access to financial services for small and medium-sized enterprises, as well as for socially vulnerable groups. Mobile banking, e-wallets and microfinance systems help reduce transaction costs, accelerate capital turnover and stimulate entrepreneurial activity in regions with limited infrastructure. In the logistics industry, the use of digital platforms facilitates the management of product flows, information and payments. The transition to electronic systems for tracking supplies and automating document flow increases the transparency of operations and reduces the risk of delays. The results obtained indicate that the integration of FinTech solutions with logistics processes creates a multiplier effect: improved financial inclusion stimulates investment in supply chain modernization, and increased logistics efficiency, in turn, strengthens the position of financial services. Conceptually, these changes are expressed in the gradual formation of a digital ecosystem where financial and logistics services function as complementary elements. This creates the basis for sustainable economic growth, increased competitiveness and the achievement of Jordan's sustainable development goals, including inclusiveness, innovation and the reduction of regional disparities. The findings validate that integrating FinTech services and digital platforms in the Jordanian financial and logistics industry creates a relatively high degree of effectiveness. The mix method process that utilized both qualitative and quantitative types of data collection, discovered that FinTech had major contribution on the improvement of financial inclusion, and efficiencies in logistics and operations. Use of digital wallets, cloud platforms, and e-KYC process brought down transaction cost sharply and extended the reach. But long-term sustainability and scalability, in the sense of API integration, regulatory compliance and logistics modernization, still lie ahead. The findings of the analysis of the efficiency of the development of FinTech and digital platforms in the financial and logistics sectors of Jordan indicate to the significant prospects of developing this technology in promoting the financial inclusiveness, optimizing the logistics processes and ensuring the sustainable development of the country's economy [34,35]. The originality of the research consists in complex, interdisciplinary study the impact of FinTech technology and digital platforms on the financial and logistics infrastructure taking into account sustainable development. Whereas access to finance and access to transport services have typically been the topics of separate analyses, the present analysis adopts a complementary view and looks for synergies between the two spheres. This comprehensive vision lets us spot deeper trends and propose solutions that address public policy and even business practices. The research methodology that is applied, a mixed methods one that combines a quantitative analysis of statistical data with a qualitative analysis of the opinions of experts, businesses and final users. This offers a multilevel comprehension of what's going on and lets us consider not only digital indicators, but also the social and economic context of the introduction of technology. Regression models, correlation analysis and data triangulation further ensure the reliability and validity of the results, which is vital for a shifting and fast-evolving digital world. The methodological approach is valuable because it enables us to articulate not only present effects of technological introduction, but also to recognize possible risks and obstacles. Special emphasis is placed on spotting challenges related to digital literacy, imperfect infrastructure and regulatory constraints that can hinder the development of FinTech and digital logistics. This can be a basis for proposing recommendations, to foster the ecosystem and make the innovation beneficial [33,35]. In addition, the study highlights the importance of coordination among various stakeholders – government, private sector, and international organizations – to successfully implement digital strategies. Integrating efforts and sharing experiences helps create sustainable platforms that can scale and adapt to changing economic conditions and user needs. The results also highlight the need to further develop support mechanisms for small and medium-sized enterprises, which play a key role in the Jordanian economy. FinTech solutions and digital platforms offer new opportunities for SMEs to access finance, streamline operations, and enter new markets, thereby contributing to economic diversification and job growth. The practical significance of the study is expressed in the possibility of using the obtained findings to improve public policy in the field of digitalization and sustainable development. This includes the development of digital literacy programs, creating incentives for the implementation of innovative technologies, improving the regulatory framework and strengthening cybersecurity systems. The introduction of an integrated approach to the development of FinTech and digital logistics will accelerate the achievement of strategic goals, including the national strategy Vision 2025 and the implementation of the UN Sustainable Development Goals. In scientific terms, the study expands the theoretical knowledge base on digital transformation in developing countries, emphasizing the features of the regional context and the specifics of the interaction between the financial and logistics sectors. The data obtained can serve as a basis for further research aimed at studying the impact of specific technologies, analyzing successful cases and developing new models for integrating digital solutions. In conclusion, it should be noted that the presented study demonstrates how FinTech and digital platforms are becoming an integral part of Jordan's economic infrastructure, ensuring not only technological progress, but also socio-economic sustainability. The developed methodology and approach allow not only to assess the current effect, but also to predict development prospects, which is important for the formation of a balanced, inclusive and innovative economy.

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4 Conclusions

The study confirmed that the digital transformation of the financial sector and logistics infrastructure in Jordan plays a systemically important role in achieving sustainable economic development. In the context of limited natural resources, high dependence on external supplies and demographic pressure, digital technologies are becoming a growth point, ensuring a more efficient distribution of financial and information flows, reducing transaction costs and creating new opportunities for businesses and the population. The analysis showed that the introduction of FinTech solutions and digital platforms not only expands access to financial services in remote regions, but also radically changes the nature of logistics processes. Mobile payments, online lending, crowdfunding, digital wallets and blockchain technologies ensure transaction transparency, accelerate the provision of services and reduce barriers to entry for new participants in the market. This is especially important for micro, small and medium enterprises, as well as for socially vulnerable groups - women, youth, rural residents, who traditionally faced limited access to financing. The study identified and described in detail the strategic aspects of the development of the digital financial and logistics ecosystem in Jordan. The key areas are:

- Digitalization of key operations - automation of payments, inventory control, routing and tracking of deliveries. This allows companies to reduce time and costs, and the state to obtain more complete data for regulation and planning.
- Formation of platform ecosystems uniting banks, FinTech startups, logistics operators and government agencies. Such ecosystems create a network effect, stimulate data exchange, increase user confidence and support the development of small innovative companies.
- Innovative models of intersectoral cooperation - joint financing of infrastructure projects, creation of joint services to support MSMEs, integration of state digital platforms with private FinTech solutions.
- Sustainable data management, including protection of personal information, cybersecurity, development of analytical tools and demand forecasting systems. This is critically important in the context of growing cyber threats and increased transparency requirements.
- Development of digital education and improvement of financial literacy among all groups of the population. Without understanding the principles of operation of new services, it is impossible to achieve their mass use and trust in them.
- Improving the regulatory framework and institutional support, including simplifying licensing procedures, protecting consumer rights and developing mechanisms to support start-ups.

Each of these areas is considered not in isolation, but as part of a common system, where FinTech tools and logistics infrastructure reinforce each other. The methodological advantage of this study lies in the integrated approach that combines quantitative indicators (service coverage level, service speed, logistics costs) and qualitative aspects (availability of technologies, user trust, institutional support). This approach made it possible to identify cause-and-effect relationships between the spread of FinTech services, the operational capacity of the logistics system and the achievement of sustainable development goals. The results obtained have practical value for the formation of public policy and corporate strategies. They can be used to develop digital inclusion programs, create conditions for supporting small and medium-sized enterprises, develop new financing instruments, and stimulate the emergence of FinTech and logistics startups. The uniqueness of the study lies in the interdisciplinary consideration of digitalization as a means of achieving synergy between financial services and logistics. This approach can be adapted to other countries with comparable economies and infrastructure, which makes it in demand outside Jordan. At the same time, the data obtained indicate the need for further research. It is necessary to assess the effectiveness of measures already taken, consider regulatory aspects and their impact on innovation activity, study the consequences of digitalization for employment, gender equality, and environmental sustainability. Such monitoring will allow adjusting national programs and increasing their effectiveness.

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