THE IMPACT OF DIGITAL TECHNOLOGIES ON FINANCIAL SERVICES

Shavkatov Abdusalim Shavkat o‘g‘li
Toshkent kimyo texnologiyalar instituti
Yangiyer filiali o‘qituvchisi
abdusalimshavkatov9@gmail.com

https://doi.org/10.5281/zenodo.14196885

Annotation: *Digital technologies are becoming a new driving force in the global economy. This study focuses on the role of digital technologies in the financial services sector and examines their impact on the country’s economic stability. The research analyzed economic data from the past seven years in the country, including key information and communication technology (ICT) indicators used in various sectors of the economy and the volume of financial services. The results indicate that digital technologies play an essential role in expanding the scope of financial services, as the use of technology offers limitless possibilities, providing advantages over human involvement in these processes.*

Keywords: *Digital technology, Financial services, Digital finance, Economic activity, Data, Web portals.*

Introduction

President Shavkat Mirziyoyev's "Digital Uzbekistan - 2030" strategy, unveiled on October 5, 2020, prioritizes the digitalization of Uzbekistan’s economic sectors and regions. This plan emphasizes the deployment of state information systems, the expansion of electronic services, and the widespread adoption of digital technologies. The strategy includes a range of initiatives targeting public education, state services, the judiciary, finance, and banking.

Over recent years, digital technologies have had a transformative effect on financial services in Uzbekistan. By incorporating digital tools, financial institutions have achieved improvements in operational efficiency, service accessibility, and the overall customer experience. As part of these digital transformation programs across regions and sectors, over 400 information systems, electronic services, and other software applications have been implemented to support socioeconomic development in various regionsificant outcome of digitalization is enhanced convenience for customers. Digital technologies have paved the way for online banking, mobile payments, and digital wallets, enabling customers to access financial services on-demand from virtually any location. This shift has reduced reliance on physical branches and minimized waiting times, thereby making financial services available to a broader audience.

In addition, digital technologies have streamlined various financial processes through automation. Tasks like account management, transaction handling, and risk analysis are

now executed more efficiently using algorithms and artificial intelligence, which reduces operational costs for financial institutions and mitigates human error.

Finally, digital technologies have also bolstered the security of financial transactions. Advanced encryption and multi-factor authentication methods help secure customer information and prevent fraud, thereby enhancing trust and confidence in the financial system. This heightened security encourages greater engagement from individuals and businesses in digital financial activities. **Literature review**

This part analytically brings together the opinions of many researchers on this topic that we are studying. Digital finance encompasses a range of novel financial products, services, software, and modes of customer communication and interaction offered by fintech companies and innovative financial service providers[2]. Digital finance extensively combines digital technology and financial services, primarily characterized by three key aspects. Firstly, it leverages artificial intelligence, big data, and cloud computing to minimize transaction expenses, allowing individuals and businesses to access payment, savings, and credit services without the need to physically visit bank branches or directly engage with financial service providers[3]. Second, due to limited financial market resources and discriminatory lending practices by traditional financial institutions, certain companies face challenges in securing development funds at favorable interest rates [4]. Therefore, digital finance aims to cater to all segments of society, providing financial services to businesses that may be marginalized by traditional financial institutions. Its objective is to improve the accessibility and inclusivity of financial services, expand the range of application scenarios, reduce the barriers to entry, and extend its reach to underserved regions that lack traditional financial services. Thirdly, digital finance offers various financial products, including savings, loans, and settlements, to both individuals and businesses. With these characteristics, digital finance can play a crucial role in supporting the transformation and advancement of companies.

Digital finance and social performance. The application of digital technology also aids in reducing firm verification costs [5].

Digital finance and governance performance. One of the significant expenses associated with corporate governance is agency costs, which arise from the separation of ownership and control within contemporary companies [6].

In terms of residents' income and consumption, digital finance enables a broader participation in the financial market. This has two main effects. Firstly, it provides convenient payment methods that cater to the diverse consumption requirements of residents [7]. In contrast, easily accessible financial services enhance residents' ability to obtain credit resources. From a social development standpoint, digital finance can effectively address issues related to employment, poverty, and energy consumption [8]; however, it is important to note that the digital divide can contribute to social inequality. Scholars have also explored the connection between digital finance and economic resilience, revealing that digitalization and the adoption of digital finance can enhance economic resilience by generating substantial positive spatial spillover effects [9].

Theoretical mechanism and research hypothesis

This study draws on data from the Republic of Uzbekistan to create an empirical model exploring the impact of digital technology adoption on the scale of financial services across different economic sectors.

The research sample includes the volume of financial services provided across Uzbekistan’s main economic activities from 2016 to 2022. Data for this analysis were sourced from the official website of the Statistical Agency under the President of the Republic of Uzbekistan [10].

Data analysis was conducted using STATA software, with Ordinary Least Squares (OLS) regression serving as the primary method. Independent variables selected for the analysis include various indicators of "Information and Communication" sector activity, specifically the number of operating enterprises and organizations categorized by economic activity type (as of January 1). This includes entities engaged in computer programming, data storage and processing services, and web portals [11]. The dependent variable is defined as the volume of financial activities, measured in billions of soums [12].

Table 1

Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Financial activities	7	36806.25	27971.983	9898.4	80849.1
Web portals	7	55	47.074	3	109
Data placement and~e	7	313	217.829	92	628
Computer programmi~s	7	619	317.969	370	1121

Source: Authors’ calculations. Frequ ency: Yearly lat a.

As shown in Table 1, the descriptive statistics reveal an average Financial activities value of 36,806.25, with a standard deviation of 27,971.983. These figures suggest that the high values can be attributed to the rapid expansion of financial services following the adoption of digital technologies in various economic sectors. This shift represents a considerable departure from previous years, resulting in high variability. Figure 1 further illustrates the impact of digital technologies on financial service volumes, with a noticeable acceleration in growth rates beginning in 2016.

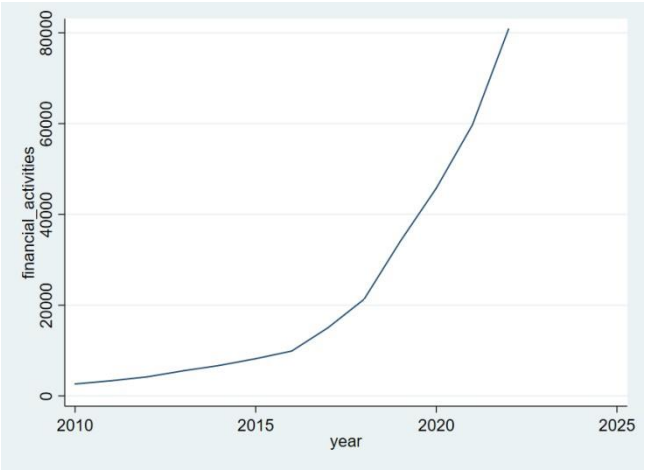

Figure 1. Source: Authors’ calculations

Results and discussion

The correlation analysis results in Table 2 indicate a strong positive relationship among the variables chosen for this study, with all correlation coefficients exceeding 90%. This suggests that an increase in one variable is associated with a corresponding increase in the others, a relationship that is statistically significant, as all p-values are below 0.05.

Table 2

Pairwise correlations

Variables	(1)	(2)	(3)	(4)
(1) Financial_acti~s	1.000			
(2) Web_portals	0.982	1.000		
	(0.003)			
(3) Data_placement~n	0.991	0.988	1.000	
	(0.000)	(0.002)		
(4) Computer_progr~t	0.993	0.978	0.975	1.000
	(0.000)	(0.004)	(0.001)	

Source: Authors’ calculations.

The regression analysis presented in Table 3 forms the core of this research. The R-squared value of 1.000 indicates that the independent variables chosen account for 100% of the variance in the dependent variable, which is statistically significant with a p-value below 0.05 (Prob > F = 0.018). This implies that the growth in the volume of financial activities in the current context strongly supports the need for broader implementation of the selected digital technologies within the economic sector. Table 3

Linear regression

Y	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
X_1	187.845	61.1	-3.07	.02	-964.191	588.502	**
X_2	102.206	12.592	8.12	.038	-57.793	262.204	**
X_3	47.813	6.264	7.63	.032	-31.779	127.404	**

Constant	-16598.045	1997.384	-8.31	.076	-41977.212	8781.121	*

Mean dependent var	41162.740	SD dependent var	28908.429
R-squared	1.000	Number of obs	7
F-test	1669.071	Prob > F	0.018
Akaike crit. (AIC)	81.198	Bayesian crit. (BIC)	79.636

*** p<.01, ** p<.05, * p<.1

Source: Authors’ calculations.

Where:

Y = Financial activities (in bln. soums)

X_1 = Web portals (units)

X_2 = Data placement and processing services (units)

X_3 = Computer programming activities

The interaction among the variables is as follows: a one-unit increase in X1 leads to an increase in Y by 187.845 units, while one-unit increases in X2 and X3 result in rises in Y by 102.206 and 47.813 units, respectively. These effects are statistically significant, with p-values below 0.05.

Conclusion and Suggestion

Based on the analysis above, we can conclude that an increase of one unit in Web portals, Data placement and processing services, and Computer programming activities results in an added value of 187, 102, and 47 units in the volume of Financial activities, respectively.

The link between digital technologies and financial services is a well-established topic, and this study re-evaluates the impact of digital technologies on regional economies. Figure 1 illustrates how digital technologies have influenced financial activities, showing a sharp increase in financial activity volume beginning in 2016, which aligns with the broader adoption of digital innovations. It is important to note that our study initially included a limited set of independent variables, while the current environment has seen a significant rise in relevant variables, further contributing to the expansion of financial activities.

Improved economic resilience allows economies to quickly regain previous growth rates or redirect resources toward new growth pathways [13,14]. Previous research on regional economic resilience has focused on measuring resilience and identifying influencing factors. Economic resilience is typically assessed using commonly recognized methods, such as comprehensive evaluation frameworks and sensitivity factors [15,16].

Bibliography:

[1] https://lex.uz/docs/5030957#-5032264

[2] P. Gomber, et al., On the fintech revolution: interpreting the forces of innovation, disruption, and transformation in financial services, J. Manag. Inf. Syst. 35 (2018) 220–265.

[3] H. Chen, S.S. Yoon, Does technology innovation in finance alleviate financing constraints and reduce debt-financing costs? Evidence from China, Asia Pac. Bus. Rev. 28 (2022) 467–492.

[4] O. Talavera, et al., Macroeconomic uncertainty and bank lending: the case of Ukraine, Econ. Syst. 36 (2012) 279–293.

[5] A. Goldfarb, C. Tucker, Digital economics, J. Econ. Lit. 57 (2019) 3–43.

[6] A.A. Berle, G.C. Means, The Modern Corporation and Private Property, Harcourt, Brace and World, Inc., New York, 1932.

[7] J. Li, Y. Wu, J. Xiao, The impact of digital finance on household consumption: evidence from China, Econ. Modell. 86 (2020) 317–326

[8] J. Lvarez-Gamboa, P. Cabrera-Barona, H. J´acome-Estrella, Financial inclusion and multidimensional poverty in Ecuador: a spatial approach, World Development Perspectives 22 (2021), 103311

[9] W. Duan, J. Madasi, A. Khurshid, D. Ma, Industrial structure conditions economic resilience, Technol. Forecast. Soc. Change 183 (2022), 121944

[10] https://stat.uz/en/

[11] https://stat.uz/en/official-statistics/tsifrovaya-ekonomika-eng

[12] https://stat.uz/en/official-statistics/services

[13] S.K. Papaioannou, ICT and economic resilience: evidence from the COVID-19 pandemic, Econ. Modell. (2023), 106500

[14] N. Dormady, A. Rose, A. Roa-Henriquez, B. Morin, The cost-effectiveness of economic resilience, Int. J. Prod. Econ. 244 (2022), 108371

[15] H.R. Soufi, A. Esfahanipour, M.A. Shirazi, A quantitative approach for analysis of macroeconomic resilience due to socio-economic shocks, Soc. Econ. Plann. Sci.79 (2022), 101101

[16] X. Wang, L. Wang, X. Zhang, F. Fan, The spatiotemporal evolution of COVID-19 in

China and its impact on urban economic resilience, China Econ. Rev. 74 (2022), 101806,

[17] Тураев, Шавкат. "Совершенствование методики расчета налоговой нагрузки." Научные исследования и инновации в индустрии 4.0. 1.1 (2022): 55-62.

[18] Бекмуродов, А., Тураев, Ш., Хасанов, Т., & Бозоров, Р. (2022). Социально-экономическое значение бедности и пути ее снижения: передовой зарубежный опыт и национальная практика. in Library, 22(2), 3-13.

[19] Тўраев, Шавкат Шухратович. "СОЛИҚ ЮКИГА ОИД ИЛМИЙ ҚАРАШЛАРНИНГ РИВОЖЛАНИШ ТЕНДЕНЦИЯЛАРИ." Иқтисодиёт ва инновацион технологиялар” журнали 4 (2021): 324-335.

[20] Тўраев, Шавкат Шухратович. "БЮДЖЕТ-СОЛИҚ СИЁСАТИНИНГ АСОСИЙ ЙЎНАЛИШЛАРИ." INTERNATIONAL CONFERENCES. Vol. 1. No. 2. 2023.