

Exploring the Effect of Digital Financial Innovation in Promoting Financial Inclusion: An Analytical Study on Mashreq al-Arabi Islamic Bank and Hammurabi Commercial Bank

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ABSTRACT

The primary objective of this study was to explore the effect of digital financial innovation in promoting financial inclusion. By adopting Mashreq al-Arabi Islamic Bank and Hammurabi Commercial Bank as a field of study. To achieve this objective, a total of (77) employees working in the two banks were selected as a sample for the study, and the researcher distributed a questionnaire form to them. The data obtained by the researcher was analyzed using the program (Spss V.22). After extracting the results, the study concluded that there is a positive and significant effect of digital financial innovation in promoting financial inclusion in Mashreq al-Arabi Islamic Bank and Hammurabi Commercial Bank. This indicates that investing in digital financial innovation represents a strategic and effective option to promote financial inclusion, as the adoption of digital financial technologies can play a vital role in promoting and developing access to financial services, and provides new possibilities to meet customers' needs and improve their financial experience.

Keywords: *Digital Financial Innovation; Financial Inclusion; Mashreq al-Arabi Islamic Bank; Hammurabi Commercial Bank.*

INTRODUCTION

The issue of financial inclusion is vital in the modern financial arena, as banks and financial institutions are making serious efforts to achieve this basic concept. Financial inclusion expresses the provision of equal opportunities for all to participate effectively in the financial system, regardless of social classes or economic circumstances. The importance of financial inclusion is to achieve sustainable economic development, as it contributes to stimulating economic growth and enhancing decent living opportunities for members of society. In the context of modern banking, financial inclusion has become indispensable. Leading banks are central to achieving this goal, as they take innovative measures to provide comprehensive financial services. The role of banks is to provide banking services through multiple media, such as digital services and smart banking applications, with the aim of providing easy access and effective control of funds. In addition, financial inclusion efforts in banks include providing financing services to low-income segments, and encouraging the use of electronic payment methods to enhance efficiency and financial security. In this context, banks play a vital role in improving the level of financial awareness and enhancing financial technology to achieve financial inclusion at the present time.

LITERATURE REVIEW

The Concept of Digital Financial Innovation:

In the era of digital technology, digital financial innovation is emerging as a driving power for the transformation of the financial services sector. This concept represents an inspiring convergence of technological innovation and creative ideas in the world of financial business. Digital financial innovation deals with using technology in new ways to enhance the effectiveness and scale of financial services. Digital technology stands as a fundamental pillar for

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achieving this type of financial innovation, as it benefits from concepts such as artificial intelligence, big data analysis, and blockchain technology (Manasseh et al., 2023: 2).

Musa & Njeru (2023: 467) explained that digital financial innovation represents a fundamental development in the world of financial services, as it combines digital technology and innovation to improve and transform areas of financial business. This concept refers to taking full advantage of modern technologies, such as artificial intelligence and big data analysis, to develop and provide innovative financial services and products.

In another context, (Bongomin et al., 2023: 2) pointed out that digital financial innovation is a bridge between technology and financial services, as it enhances the provision of more efficient and effective financial services. This concept allows the use of technologies to simplify banking operations, such as electronic payments, managing accounts via smart banking applications, and speeding up transaction processes.

Through financial technology (FinTech), digital financial innovation can improve the user experience and provide innovative financial services, such as crowdfunding, digital investing, and smart insurance. It also encourages cooperation between technology companies and financial institutions to develop innovative solutions that effectively meet customer needs. Digital financial innovation is characterized by changing the traditional way of providing financial services and opening new horizons for opportunities and innovation in the world of financial business, which contributes to enhancing economic development and raising the level of financial inclusion on a large scale (Nguyen et al., 2023: 12).

Because of what was mentioned above, digital financial innovation could be defined as the use of modern technology such as artificial intelligence and big data analysis to improve and develop financial services, which contributes to providing better customer experiences and improving the overall efficiency of the bank (Abbas et al., 2024: 3).

In another opinion, digital financial innovation is defined as a strategic transformation characterized by the adoption of digital technology to improve and develop the financial services and products provided by the bank, which leads to enhancing interaction between customers and financial institutions (Babilla, 2023: 3).

The Importance of Digital Financial Innovation:

In the era of modern technology, digital financial innovation is embodied as one of the most important engines driving the major transformation in the financial services sector. Its importance lies in its ability to improve customer experience and provide more effective and convenient financial services (Liu & Hou, 2023: 30). New technologies, such as artificial intelligence and big data analysis, are transforming financial services operations, allowing financial institutions to provide smart and advanced solutions (Yan, 2023: 106). Given the increasing importance of digital financial innovation, we will list below some of the basic benefits that can be obtained through it, which are as follows:

- a. **Improving user experience:** Digital financial innovation enhances the user experience by providing more seamless and efficient financial services. The integration between technology and financial services allows providing unique experiences to customers; whether through smart applications or digital interfaces (Zuo et al., 2023: 3).
- b. **Promoting financial inclusion:** Digital financial innovation plays a pivotal role in enhancing financial inclusion, as it contributes to providing broader access to financial services for individuals with limited income and remote areas. Technological innovation enables the provision of customized financial solutions to meet the needs of marginalized groups of society (Liu & Hou, 2023: 2).
- c. **Providing innovative financial services:** Digital financial innovation helps launch innovative financial products and services, such as crowdfunding and digital investment, providing new options for customers. This type of innovation enables improved performance and effectiveness in areas such as digital insurance and smart money management (Muttaqin, 2023: 563).
- d. **Improving operational efficiency:** Digital financial innovation contributes to improving the operational efficiency of financial institutions, as it can simplify operations and speed up transactions. This type of innovation allows the provision of fast and safe services, which leads to reducing operational costs (Róžański & Voytovych, 2023: 224).
- e. **Enhancing financial security:** Digital financial innovation focuses on using security technology to protect financial information and secure electronic transactions. This financial innovation enhances awareness of the importance of financial security and provides effective solutions to combat cyber threats (Liu, 2023: 143).

Scale of Digital Financial Innovation:

Digital financial innovation is one of the modern variables and concepts in the world of business and financial institutions. Given this, there are a small number of research and studies that have sought to study and test this variable, and find out what its relationship is to the rest of the organizational and financial variables, and how it is affected by and affected by them. As a result, in order to measure digital financial innovation, we will rely on the scale presented by the researchers (Hussain & Papastathopoulos, 2022), which consists of (6) items.

The Concept of Financial Inclusion:

With the tremendous progress in financial technology and the transformations of the digital economy, the concept of financial inclusion has become one of the vital issues in the financial services arena. It is about providing fair and equal financial opportunities for everyone, regardless of income or geographic location. Financial inclusion addresses efforts to provide comprehensive, efficient and effective financial services to individuals and businesses, especially those living in remote communities or experiencing poverty (Bakhsh et al., 2024: 2).

In light of the digital transformation, digital technology has become a major factor in achieving financial inclusion, as it began to provide digital payment methods, online banking accounts, and remote banking services. This digital transformation is a strong catalyst for improving individuals' access to financial services, which enhances investment and savings opportunities (Yang & Masron, 2024: 2).

With increasing focus on innovation in financial technology and modernization of financial policies, the future of financial inclusion appears to be moving towards additional improvements in the provision of financial services and increased opportunities for vulnerable economic groups. Today's topic of financial inclusion reflects the importance of achieving balance in economic growth and achieving an effective transformation in financial services for the benefit of all (Zhang et al., 2024: 70).

By achieving financial inclusion, economic equality can be enhanced and financial gaps between different segments of society can be reduced. Access to digital financial and banking services is critical in promoting this concept, as digital technology plays a major role in providing accessible financial solutions for all groups (Susan et al., 2024: 465). Financial inclusion contributes to promoting sustainable development by stimulating investments and enabling individuals and organizations to take full advantage of economic opportunities. In addition, financial inclusion promotes economic stability by enhancing financial security and providing a transparent and efficient financing environment (Boulanour et al., 2024: 185).

As a result of what was mentioned above, financial inclusion can be defined as expressing the efforts made by the bank to provide comprehensive and fair access for all segments of society to a wide range of financial services such as bank accounts, loans, and electronic payment services (Ozili et al., 2023: 1107).

In another opinion, financial inclusion can be defined as referring to expanding access to weak economic classes and low-income people, giving them the opportunity to use financial services to improve their financial situation (Turhan, 2024: 149).

The Importance of Financial Inclusion:

In light of the rapid economic transformations and continuous technological developments, interest in the concept of financial inclusion is increasing as a vital focus in the world of financial services. Currently, the importance of financial inclusion is becoming more urgent and clear (Saqib et al., 2023: 2). Financial inclusion is an essential element for enhancing economic stability at the individual and societal levels. By expanding access to financial services, individuals can achieve balance in managing their money and participate effectively in the financial system (Lee et al., 2023: 419). Given the importance of financial inclusion for individuals, communities and financial institutions, we will list below some of its benefits as follows:

- a. Improving access to financial services: Financial inclusion contributes to providing broader and more comprehensive access for individuals and companies to various financial services, which increases the opportunities for effective use of financial services (Shaikh et al., 2023: 2).
- b. Promoting economic participation: Financial inclusion enhances the economic participation of lower economic classes, as it provides opportunities for investment and money management, which enhances financial stability and reduces economic inequality (Tram et al., 2023: 259).
- c. Improving financial security: Financial inclusion plays an important role in enhancing financial security, as individuals and companies can modernize their trading methods and diversify their sources of income in a way that increases their financial stability (Zhang et al., 2023: 3).

- d. Encouraging technological innovation: Financial inclusion stimulates technological development in the financial services sector, which opens the door to digital innovations that contribute to improving the availability and efficiency of financial services (Singh et al., 2023: 215).
- e. Achieving sustainable development: Financial inclusion is a key to achieving sustainable development, as it contributes to stimulating sustainable economic growth and enhances the balance between economic, social and environmental dimensions (Alhammadi, 2023: 3).
- f. Achieving economic equality: Financial inclusion contributes to achieving economic equality by providing equal opportunities for everyone to benefit from financial services and achieve financial progress (Daud, 2023: 2).

Scale of Financial Inclusion:

In order to measure financial inclusion in the current study, and given the difficulty of obtaining financial data for the banks in the study sample, reliance will be placed on the scale developed by the researchers (Natarajan, P., & Sulaiman, 2021), which consists of (8) items.

METHODOLOGY

Problem of the Study:

Banks, whether governmental or private, are among the main financial institutions that play a vital and major role in the financial system of any country. With the increase in population numbers in almost all countries, there have become major challenges that threaten the work and survival of banks, as they are responsible for providing their services to all segments of society, and thus they constitute the basic pillar of the financial inclusion system, as they provide a wide range of financial services to individuals and companies. This includes opening bank accounts, providing loans, providing payment methods, providing investment services, and many other services. The issue of financial inclusion requires strategic thinking from banks. Banks, in turn, are characterized as a financing center and intermediary between savers and borrowers, and thus play a pivotal role in achieving the concept of financial inclusion. Banks are expanding their services to include broader segments of society, from low-income individuals to small and medium-sized enterprises. Achieving financial inclusion requires banks to adopt different strategies that include providing innovative financial services that are appropriate to the diverse needs of customers. Technology and innovation in its use play a major role in achieving this goal, as technology enables banks to provide their services over the Internet and provide electronic payment methods, which increases the ease of access for customers in different regions. Financial innovation in financial technology, known as "FinTech," also enables banks to provide more advanced services such as digital loans and asset management effectively. However, banks face challenges such as financial security and data protection, as well as the need to provide appropriate financial services to low-income customer groups. Success in achieving financial inclusion depends on an effective balance between meeting customers' digital needs and ensuring the sustainability of banking in light of economic and technological transformations. As a result, the current study will seek to explore the effect of digital financial innovation in promoting financial inclusion.

Objectives of the Study:

The objectives of the current study were formulated and developed by relying on a careful analysis of the problem of the aforementioned study, and they include the following:

- a. Exploring the availability of digital financial innovation in Mashreq al-Arabi Islamic Bank and Hammurabi Commercial Bank.
- b. Knowing the level of financial inclusion in Mashreq al-Arabi Islamic Bank and Hammurabi Commercial Bank.
- c. Explaining the relationship between digital financial innovation and financial inclusion in Mashreq al-Arabi Islamic Bank and Hammurabi Commercial Bank.
- d. Testing the extent of the effect of digital financial innovation in promoting financial inclusion in Mashreq al-Arabi Islamic Bank and Hammurabi Commercial Bank.

Hypotheses of the Study:

Based on the objectives of the aforementioned study, two hypotheses were developed for the current study, through which these objectives can be achieved, which are as follows:

- a. The first main hypothesis: It states, “There is a significant correlation between digital financial innovation and financial inclusion in Mashreq al-Arabi Islamic Bank and Hammurabi Commercial Bank”.
- b. The second main hypothesis: It states, “There is a significant effect of digital financial innovation in promoting financial inclusion in Mashreq al-Arabi Islamic Bank and Hammurabi Commercial Bank”.

The Study Sample:

The sample for the current study consisted of employees working in Mashreq al-Arabi Islamic Bank and Hammurabi Commercial Bank, numbering (77) employees.

DATA ANALYSIS

Descriptive Analysis:

Descriptive Analysis of Digital Financial Innovation:

Table (1) below shows the results resulting from the descriptive analysis of digital financial innovation variable, which consists of (6) items, in Mashreq al-Arabi Islamic Bank and Hammurabi Commercial Bank under study.

Table (1) Results of the descriptive analysis of digital financial innovation variable

Symbol	In our bank... Items	Mean	Std. Dev.	Relative Importance	Seq.
DFI1	The quality of our digital financial solutions is superior compared to our competitors.	3.44	0.690	%69	3
DFI2	The advantages of our digital financial solutions outperform our competitors.	3.57	0.667	%71	2
DFI3	The applications of our digital financial solutions are completely different from those of our competitors.	3.12	0.805	%62	6
DFI4	Our digital financial solutions differ from our competitors in terms of service platforms.	3.35	0.724	%67	4
DFI5	Our new digital financial solutions are subtle improvements to existing services.	3.78	0.612	%76	1
DFI6	Some of our digital financial solutions were new to the market at the time of launch.	3.23	0.748	%65	5
Average		3.42	0.708	%68	

Source: (SPSS V.22) Outputs.

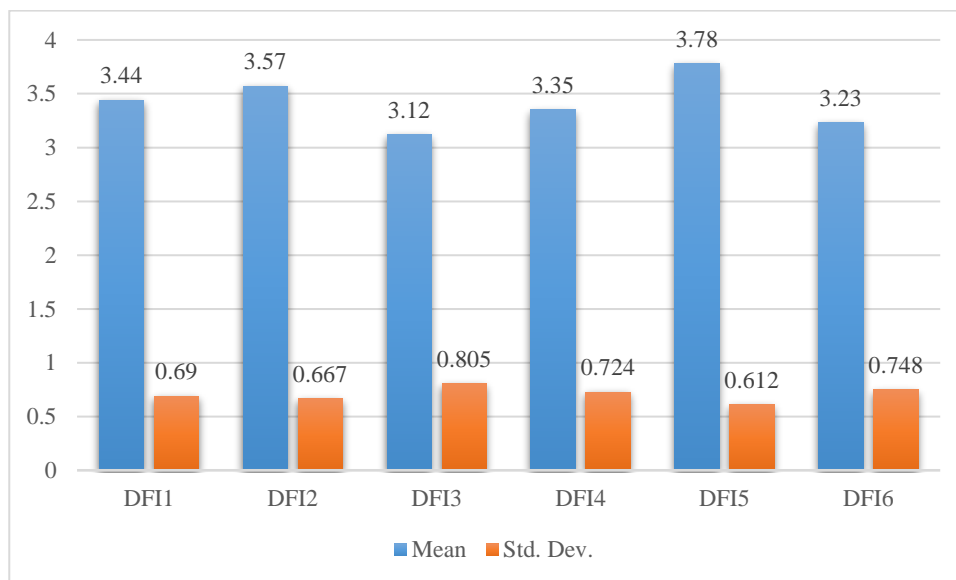


Figure (1) Chart of the results of the descriptive analysis of digital financial innovation variable

Source: (Microsoft Excel 2016) Outputs.

The results of the descriptive analysis presented in Table (1) and shown in Figure (1) above show an effective response by members of the study sample to the questionnaire items related to the digital financial innovation variable consisting of items (DFI1-DFI6) in Mashreq al-Arabi Islamic Bank and Hammurabi Commercial Bank. It is clear that individuals employed in the two banks express positive opinions when responding to statements related to the digital financial innovation variable, as the arithmetic mean of this variable reached (3.42), the standard deviation (0.708), and a relative importance of (68%). This shows that the study sample members agree, on a relatively average level, that digital financial innovation constitutes an important and vital aspect of the current banking environment, and they consider it an essential component for the future development of the bank. The expansion of the use of financial technology and digital services shows that individuals see digital financial innovation as an effective way to improve and facilitate financial operations and enhance access to customers. In addition, item (DFI5), which indicates “In our bank, new digital financial solutions are subtle improvements to existing services,” stands out as one of the most prominent items contributing to enriching this variable, as its arithmetic mean was (3.78), and the standard deviation was (0.612), with a relative importance of (76%). In contrast, item (DFI3), which states, “In our bank, the applications of our digital financial solutions are completely different from those of our competitors,” achieved the lowest arithmetic mean among the items, reaching (3.12), and the standard deviation (0.805), with a relative importance of (62%).

Descriptive Analysis of Financial Inclusion:

Table (2) below shows the results resulting from the descriptive analysis of the financial inclusion variable, which consists of (8) items, in Mashreq al-Arabi Islamic Bank and Hammurabi Commercial Bank under study.

Table (2) Results of the descriptive analysis of financial inclusion variable

Symbol	In our bank... Items	Mean	Std. Dev.	Relative Importance	Seq.
FI1	We offer a wide range of value-added services.	3.43	0.659	%69	2
FI2	We provide high-quality services that meet customers' financial expectations.	3.31	0.692	%66	4
FI3	Employees clearly explain the terms and conditions of services to customers.	3.52	0.633	%70	1
FI4	We maintain best marketing practices to communicate with customers.	3.04	0.844	%61	8
FI5	We make it easy to navigate online banking to track transactions.	3.11	0.785	%62	7
FI6	We are technically strong and it is not difficult to make transactions.	3.26	0.718	%65	5
FI7	Reaching the staff is very convenient when customers have problems.	3.19	0.766	%64	6
FI8	We constantly update customers with the latest information about new services.	3.37	0.678	%67	3
Average		3.28	0.722	%66	

Source: (SPSS V.22) Outputs.

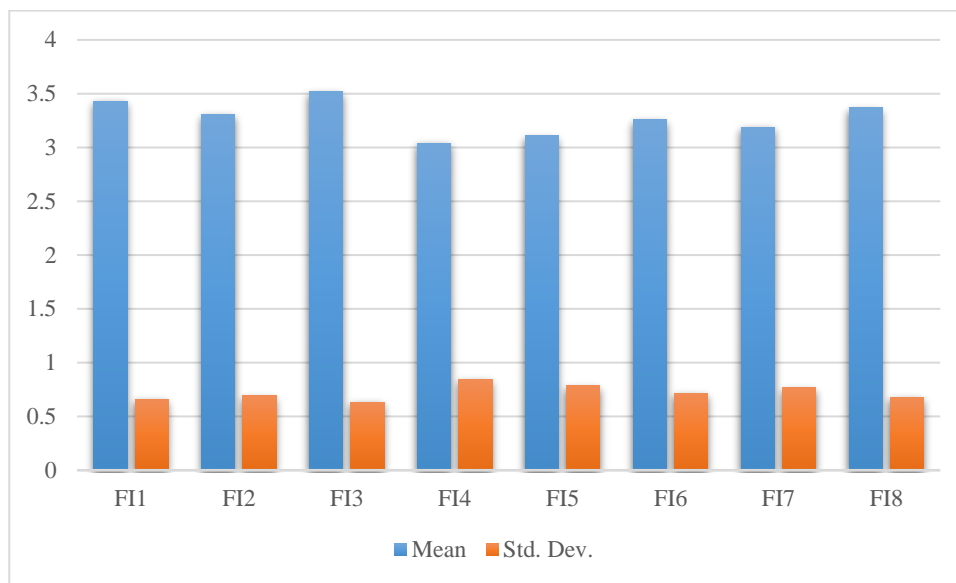


Figure (2) Chart of the results of the descriptive analysis of financial inclusion variable

Source: (Microsoft Excel 2016) Outputs.

The results of the descriptive analysis presented in Table (2) and shown in Figure (2) above show an effective response by members of the study sample to the questionnaire items related to the financial inclusion variable consisting of items (FI1-FI8) in Mashreq al-Arabi Islamic Bank and Hammurabi Commercial Bank. It is clear that individuals employed in the two banks express positive opinions when responding to statements related to the financial inclusion variable, as the arithmetic mean for this variable reached (3.28), the standard deviation (0.722), and a relative importance of (66%). This shows that members of the study sample are willing to explore and adopt new technologies and strategies that contribute to improving financial communication and providing equal opportunities for all, which reflects their commitment to enhancing financial inclusion as an essential part of their vision to provide distinguished and sustainable banking services. In addition, item (FI3), which refers to “In our bank, employees clearly explain the terms and conditions of services to customers,” stands out as one of the most prominent items contributing to enriching this variable, as its arithmetic mean was (3.52), and the standard deviation was (0.633), with relative importance reached (70%). In contrast, item (FI4), which states, “In our bank, we maintain best marketing practices to communicate with customers,” achieved the lowest arithmetic mean among the items, reaching (3.04), and the standard deviation (0.844), with a relative importance of (61%).

Hypothesis Testing:

Testing the Correlation Hypothesis:

Shown in Table (3) below are the results for testing the hypothesis of the correlation between the two study variables represented by (digital financial innovation and financial inclusion), which states: “There is a significant correlation between digital financial innovation and financial inclusion,” as follows:

Table (3) Results of testing the correlation hypothesis for the study variables

		DFI	FI
DFI	Pearson Correlation	1	.726**
	Sig. (2-tailed)		.000
	N	77	77
FI	Pearson Correlation	.726**	1
	Sig. (2-tailed)	.000	
	N	77	77

** . Correlation is significant at the 0.01 level (2-tailed).

Source: (SPSS V.22) Outputs.

Based on the results presented in Table (3) above, it clearly appears that there is a significant correlation between digital financial innovation and financial inclusion in Mashreq al-Arabi Islamic Bank and Hammurabi Commercial Bank. The correlation value between them reached (0.726), with a significance level of (0.000). These results reflect the significant positive interaction between digital financial technologies and improved access to financial services. This shows a positive trend towards digital transformation in the banking sector, and indicates the possibility of improving the user experience and expanding the scope of financial services to include larger categories of individuals. This connection also indicates the importance of integrating digital financial innovation as an effective means of enhancing financial inclusion and improving banking services.

Testing the Effect Hypothesis:

The results for testing the effect hypothesis for the two variables of the study (digital financial innovation and financial inclusion) are shown in Table (4) below, which states: "There is a significant effect of digital financial innovation in promoting financial inclusion," and as follows:

Table (4) Results of testing the effect hypothesis for the study variables

Dependent variable		Financial Inclusion				
Independent variable		β	R^2	F. Value	Sig.	Result
Digital	Financial Innovation	.726	.527	16.348	.000	Accept

Source: (SPSS V.22) Outputs.

The results shown in Table (4) above indicate that there is a significant effect of digital financial innovation in promoting financial inclusion in Mashreq al-Arabi Islamic Bank and Hammurabi Commercial Bank under study. This was shown by the regression coefficient (β), which reached (.726), with a significance level of (.000), which is lower than the significance level that was assumed by the researcher, which is (0.05). In addition, the explanatory coefficient (R^2) reached (.527), and this in turn indicates that digital financial innovation explains (52.7%) of the variance occurring in the dependent variable represented by "financial inclusion." In order to confirm whether the hypothesis has been verified and accepted or not, the researcher extracted the calculated (F) value of (16.348), which exceeded its tabulated value of (4.00), and as a result this hypothesis is accepted.

CONCLUSION

The primary objective of the current study was to explore the extent of the effect of digital financial innovation in promoting financial inclusion or not in Mashreq al-Arabi Islamic Bank and Hammurabi Commercial Bank. To achieve this objective, the opinions of individuals employed in these two banks were relied upon as a sample for the study. The data obtained were analyzed using the program (Spss V.22). After extracting the results, it was found that there is a positive and significant effect of digital financial innovation in promoting financial inclusion in Mashreq al-Arabi Islamic Bank and Hammurabi Commercial Bank. These results, in turn, indicate that the effective adoption of digital financial innovation is a critical factor in promoting levels of financial inclusion in the two banking institutions studied. These results reflect the effectiveness of investing in financial technology and adopting digital innovations as an effective means of promoting access to financial services and stimulating economic participation. This indicates the necessity of following up on technological developments and integrating them into banks' strategies to meet the needs of their customers and promote the effectiveness of their banking operations.

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