

The importance of using technology in financial operations to further improve banks' profitability

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Abstract: The study aimed to determine the status of technology use and financial operations performance and its impact on profitability indicators. Is there interest in technology among banks and to what extent are banks able to provide advanced services and keep pace with developments? The major developments in modern technology have contributed to the application of modern methods of dealing with customers and banks. These recent changes have made it necessary for Iraqi banks to advance the reality of technology and the performance of financial operations to improve profitability in banks. It has also clarified the importance of using technology and banking services and the role they play in serving customers by taking advantage of these technological developments. This study assumes that the use of technology and the performance of financial operations affect the indicators of banks' profitability. To prove the hypothesis of this study, the data shown by the questionnaire were presented and the sample responses were analyzed regarding the performance of financial operations and enhancing the bank's profitability using technology. Frequency distribution tables for the study variables were prepared and adopted for the purposes of the statistical analysis process to obtain the weighted arithmetic means, standard deviations, and the coefficient of variation, to know the impact of the variables. The study concluded that technological developments have been reflected positively in the banking sector. The researcher concluded the study with a set of suggestions and recommendations to develop and keep pace with technology to increase competition between banks, serve customers, and achieve profitability, including addressing the development of technology.

Keywords: *Financial technology, Performance of financial operations, Profitability.*

1. Introduction

Today, the world is witnessing rapid changes and developments in all aspects of life and the increase in factors of scientific and technological innovation. In the current era, the technological development of communication means has led to innovation and information, and has reached a higher rate of development. Financial business models need to be developed in line with current developments in various sectors, which has led to the trend towards the application of technology. Technological developments have led to the emergence of a number of developments in banking activities. This is due to the fact that banking activities have absorbed a huge number of technological achievements that have been achieved in recent years. Modern technology, competition and new financial innovations have come together to enter a new era with unique methods and tools that were not known before, and increased competition among banks to provide the best services by understanding the needs and expectations of their customers, i.e. the customer is the main focus, and selecting and training their employees to provide distinguished performance and continuous improvement in the services they provide.

Importance of the research: The importance of the research is represented in:

1- Improving the financial sector and increasing the profitability of banks. The results of the study can contribute to directing the financial sector towards using technology more effectively and achieving more profits.

2- Emphasizing the reliance on new methods and techniques, which are an important measure of the bank's success.

3- Clarifying the importance of applying technology.

4- Explaining the importance of technology in performing financial operations is one of the important steps to increase the provision of services to customers as well as increase the bank's profitability.

Research problem: The major developments in the field of modern technology that the economic sectors in general and the banking sector in particular have been exposed to have contributed to the application of modern methods characterized by flexibility and ease of the process of mutual dealing with customers and bank management and their reliance on modern technology. These modern changes and changes in the international environment have made it necessary for Iraqi banks to advance the reality of modern technology and the performance of operations in banks. The main problem of the study is: (Is there an interest for banks in technology and the extent of the impact of the use of technology in financial operations in order to increase profits in banks).

1.1. Research Objectives

1- Study the impact of the use of technology on the efficiency of financial operations in banks.

2- Evaluate the impact of technology on reducing costs and increasing revenues in banks.

3- Examine the extent of the impact of technology on improving the customer experience and increasing loyalty to the bank.

4- Explain the extent of banks' interest in using technology to increase and enhance the bank's profitability.

1.2. Research Hypotheses

First:—Analysis and testing of the correlation between technology and bank profitability (testing the first main hypothesis) There is a significant correlation between the use of technology and enhancing the bank's profitability.

Second: - Analysis and testing of the correlation between the performance of financial operations and the use of technology (testing the second main hypothesis) There is a significant correlation between the use of technology and the performance of financial operations.

Third: - Analysis and testing of the correlation between the profitability of the bank and the performance of financial operations (testing the third main hypothesis) There is a significant correlation between the profitability of the bank and the performance of financial operations.

Fourth: - Analysis and testing of the impact of technology in enhancing the profitability of the bank (testing the fourth main hypothesis) There is a significant impact of the use of technology in enhancing the profitability of the bank.

First requirement: The theoretical framework for the use of technology in the performance of financial operations and profitability in banks

The concept of technology: Technology is the systematic knowledge of techniques, and it is the sum of scientific and technical knowledge that must be controlled to form a goal, and technology develops according to science and technology, and spreads in an interconnected manner due to the context of natural flow or traditions (Bou Mael Saad, 2004: 205). It is also defined as financial tools, services, planning and new forms of financial institutions that aim to reduce the cost of improving transactions, allocating resources and reducing changes in growth (Jacque, 2007).

The concept of financial technology:

Financial technology can be defined as an innovation in financing technology with the potential to bring new innovations to applications and business models, financial products or services...etc., affecting

financial institutions and markets (Schindler, 2017). The Financial Stability Board (FSB) also defines financial technology as "technology-based innovation". In the financial and services sector, this may lead to new business models, applications, processes or products "and have had a significant impact on the provision of financial services" (Murchison, 2019: 21)

Characteristics of financial technology: (Azhari et al., 2018: 66)

1-Financial technology is a set of knowledge, skills, methods and basic financial knowledge.

2-Financial technology is not an end in itself, but a means for financial institutions and banks to achieve their goals.

3-Fintech is a means to an end.

4-Banking and financial services are the main applications of technology.

The application of technology is not limited to the performance of banking and financial services, but also extends to management practices.

The importance of financial technology:

The importance of financial technology is evaluated for the following reasons: (Malika et al., 2018: 93).

1-Through innovations that contribute to financial inclusion, comprehensive growth and diversification of economic activity

Providing financial services to those who do not deal with the banking system.

2-Facilitating access to alternative sources of financing for small and medium-sized enterprises.

3-Achieving financial stability through the use of technology to ensure compliance with regulatory rules and governance.

4-Managing foreign trade and transferring labor abroad and providing cost-effective mechanisms for cross-border payments, Justification for the application of banking technology: No one can deny the advantages of using technology and modern techniques in various areas of life. The use of these technologies in Western banks has achieved four main goals (Mohamed Shukrin, 2005: 32, 33) A- Effective performance: Modern technology allows banks to manage a large number of banking accounts for customers without the need to increase the number of employees while achieving the speed of completing transactions.

B- Cost saving: The introduction of technology to process transfer and payment orders increased the amount and the checks that were used to settle payments after World War II reduced the cost of sending checks from branch to branch, from one bank to another, and the labor costs associated with sorting, reading and manually recording these checks.

C- Freedom from the restrictions of time and place: This became possible after the introduction of technology in banking transactions with banks and conducting transactions and receiving services from outside the company at any time and from anywhere outside the company's headquarters and outside official working hours.

D- Providing new services: The application of modern technologies enabled banks to provide services with new features that were not known before, and also allowed these customers to benefit from better opportunities to invest their money, they became more aware and conscious of what is happening in the various financial and monetary markets, which made it possible to stand on the prices offered in other places that are rapidly declining due to the information revolution.

The concept of financial operations: Financial operations are defined as: "The main activity carried out by banks with the aim of achieving profit, and practicing them may expose the bank to commercial risks that may cause it to lose some of its money (Abdul Fattah Suleiman, 2017: 7).

Characteristics of financial operations: We can clarify that financial operations have a set of characteristics imposed by the bank and can be summarized as follows: (Ali Jamal al-Din Awad, 1994: 22).

1 - Technical formula: Financial operations have a precise technical formula because they use technical terms that regulate technical topics and in some cases may not express the linguistic meaning, and banking law is of a technical nature when we talk about classical banking services, and when we

move to electronic financial operations, the technical and technical aspects become more complex, especially when we include banking services terms, terms related to information and communications technology, the Internet, computer networks and various communications.

2–Unification and repetition: Banks rely on unification and repetition between different banks, and even their technology can be very similar in many countries. This is due to the fact that many banking operations, mainly related to foreign trade, extend their impact to several countries in a single operation, as well as operations related to documentary credit.

3–Banking operations are mostly based on a personal nature: The trust factor is very important between the bank and the customer, it is important for the bank in the face of the customer and for the customer in the face of the bank, but in this case of tension, we do not underestimate the importance of this factor for the bank, it can lead to great risks and lead to financial losses for banks. As for electronic banking operations, they are more difficult for banks due to the high prevalence of fraudulent methods by customers in the banking and financial sectors on the Internet.

4–Having contracts or contractual terms: Most banking operations are in the form of standard contracts with specifications prepared in advance by banks, and most jurists have come to consider many banking operations contracts as acceptance contracts, as banks only need to specify their own contractual terms and customers to accept or reject these terms.

The concept of electronic financial operations: Electronic financial operations are defined by the US Federal Financial Institutions Oversight Council as providing serious and traditional banking services and obtaining information about the services provided by banks directly to customers through interactive e-learning channels and through various networks (Alaa Al-Tamimi, 2012: 23) Electronic financial operations aim primarily to provide traditional or innovative banking services to banks through electronic communication networks and are limited to participants in them according to the membership conditions determined by the bank (Ahmed Nours and Al-Saeed Barbaka, 2016: 90). Features and characteristics of electronic financial operations Through the previous definition of electronic financial operations, the most important features and characteristics of these financial operations can be summarized, as follows (Youssef Hassan, 2012: 16):–

1–Cross-border electronic financial operations, because citizens of one country can benefit from the services of banks in other countries. Electronic banking services, such as e-commerce, do not believe in borders, so if disputes arise related to these banking services, it is necessary to raise the issue of jurisdictional disputes and applicable law.

2 – Electronic financial operations dispense with papers, and all correspondence is conducted electronically, and is uploaded or recorded in an unimportant division result of an electronic nature, and then the form of proof is provided in the absence of a handwritten document.

3–If the customer conducts electronic banking remotely without coming to the bank and concluding a contract, this contract will be between two absentees, and electronic banking raises the issue of a remote contract.

4–Electronic financial operations are much less expensive than regular or traditional banking operations, as they are done through electronic banks, as the least possible number of workers are employed and the ability to do so is available 24 hours a day, day and night. It is also a relative concept that expresses the relative relationship

What is meant by profitability?

Profitability has many definitions, and here are some of them: It is defined as the increase in revenues over expenses, in other words, the increase in assets over liabilities. It is defined as: "The bank's ability to increase its capital" (Ismail Muhammad, 1976: 67). It is also known as the bank's ability to achieve an increase in invested assets, which is a cash increase for the difference between the cash paid to purchase an investment commodity, represented by interest on deposits, and the cash received when selling an investment commodity (Hani Ahmed, 2015: 18). Between profits and investments that contribute to achieving profits, this ratio aims to measure the management's ability to achieve profits

and its efficiency in achieving net profits, and profitability is considered one of the most reliable ratios in determining the institution's ability to achieve profit, because it is one of the most reliable ratios, and it is one of the main indicators used by current and potential investors and potential investors to determine the direction of their investments, and therefore profitability is a clear indicator in the market as it reflects the bank's competitive position and the quality of its management (2022:70, Mohammad).

The importance of profitability is evident from the following factors (Buthaina, 2021: 29,28).

A- Profit is necessary for bank and institution owners, as it plays a role in increasing investment and wealth.

B- Profits are necessary to obtain the capital needed for the future, and this can be achieved in the following ways:

- Encouraging capital owners to subscribe when recapitalizing banks.
- Continuous reinvestment of profits is one of the means of self-financing.
- Increases shareholders' confidence in the bank by generating a return on capital acceptable to shareholders

T- Dividends are necessary to compensate for the various risks that banks are exposed to and reduce the risk of losses. There are different types of risks: credit risks, theft, fraud, as well as interest, etc.

D- Profits are necessary to evaluate the efforts made in general, as they provide a benchmark for the performance of the management team.

Profit maximization methods:

1-Raising the prices of some banking services that the Banking Law allows to increase their prices. Most fees and interest rates are fixed by banks, but new practitioners are looking for ways to increase fees and interest rates. This is especially the case for interest rates, as they have upper and lower limits and their prices depend on working conditions in particular, because interest rates have an upper and lower limit and their prices depend on working conditions and working conditions.

2-Banks are looking for new opportunities and services to provide in new and different sectors or new regions or new customers or new services for existing customers.

3-Pressures on spending in all sectors, especially in the field of public spending.

4-The complete removal of unified funds and assets has created liquidity problems for the bank. Although improving profitability tends to focus only on rationalizing spending, improving profitability can be achieved through a number of inputs, including increasing new opportunities, increasing profits and contracts, and better use of available resources.

Profitability indicators: Profitability indicators are considered among the most important financial indicators, as they reflect the overall performance of the bank and unlike other indicators, they reveal the bank's ability to achieve profit from its expenses (Jadoua et al., 2016: 310).

First:-Return on assets: The return on assets is calculated by dividing the net profit after tax by the total assets, and thus we obtain the return on assets. The return on assets is measured by the overall efficiency of management in generating profit, and profitability is a measure of profitability per dollar of assets (2002) 54 Ross et al.). The following is the equation for calculating the return on assets rate (Reilly & Brown, 2012: 276).

$$\text{Net profit after tax} \div \text{Total assets} = \text{Return on assets rate}$$

Return on assets is considered one of the most important indicators of credit scores and one of the most important financial indicators that measure management efficiency through the exploitation of assets in its activities. The higher it is, the more efficient the facility is. This indicator is presented in the form of a financial ratio (Al-Taie et al., 2022: 296). The return on assets also determines the profitability of the bank's investments (long and short-term). If this indicator decreases, this means a decrease or weakness in the production of the bank's investments and thus weak operational and investment efficiency (Abbas, 2018 : 127). Second:-Return on equity: Net profit divided by equity capital Return on equity is the return on investment on the owner's money, and the higher this return, the higher the rate

of return (Titelman et al, 2011 : 150) The higher the rate, the better the management's performance. Equity capital is determined by the following equation $\text{Equity} \div \text{Return on equity} = \text{Net profit}$ This ratio is also known as the return on net worth (RONW) This ratio measures the amount of profit from shareholders' equity as a percentage and represents the return that investors get on investing their money as a return on the risk of investing their money. This ratio indicates the extent of management's efficiency in using shareholders' money. Several formulas are used by investors, including the following

1–Return on average common equity (ROAC) Return on average common equity: It is shareholders' equity divided by common stock at the beginning and end of the period. Shareholders' equity in common stock at the beginning and end of the period is particularly important, and the duration of shareholders' equity always changes significantly throughout the fiscal year. 2–Investors use shareholders' equity at the beginning of the period to determine return on shareholders' equity Investors can use shareholders' equity at the beginning of the fiscal year to calculate return on shareholders' equity, or they can use shareholders' equity at the end of the fiscal year to calculate return on shareholders' equity. This difference allows financial analysts to determine changes in the bank's profitability over the period. From the investor's point of view, the return equal to the risk-free return is called return on shareholders' equity. It depends on investment policies and activities (Al-Sheikh, 2008: 46, 47).

Third:–Return on available funds: Dividing net income by total deposits plus shareholders' equity (Jawad, 2013: 11). Return on available funds is calculated using the following equation:

$$\text{Total deposits} + \text{shareholders' equity} / \text{return on available funds} = \text{net profit.}$$

This ratio indicates the extent to which the bank is able to achieve a return by using its resources due to the importance of financing, shareholders' equity and deposits in financing assets. A high level of this indicator indicates that the management is using its resources efficiently and in a sound manner, while a low level of this indicator indicates that the rate of increase in financial resources is higher than the rate of increase in net profit (Saeed et al. 2022: 303).

Fourth:–Net profit margin: This ratio measures the bank's profit per dollar of revenue and reflects the bank's operational efficiency. The higher this ratio is, the better the bank's financial performance, and the greater the likelihood of achieving a higher rate of return in generating revenue (Al-Mutairi, 2022: 55). This ratio measures the bank's ability to monitor and control expenses. The net profit margin is measured according to the following equation (Al-Mikhlaifi, 2004: 53).

$$\text{Total revenues} \div \text{Net profit margin} = \text{Net profit after deducting interest and taxes}$$

Banks pay great attention to the profit margin, as having a high-value profit margin is desirable (Rose et al, 2002 : 68).

Fifth:–Earnings per share: Earnings per share are one of the best and most widely used indicators because they show the profitability of the institution after tax (Abed and Zamlat, 2019: 119). This ratio increases as future distributions increase and expected risks decrease. It is the estimated profits per share that shareholders are expected to achieve (Al-Jalijawi, 2010: 99).

This ratio determines the efficiency of the bank's overall financial performance and is estimated according to the following equation (Al-Yassin, 2019: 70).

$\text{Number of outstanding common shares} \div \text{Earnings per share} = \text{Net income}$ Earnings per share is more widely used and is defined as one of the few accounting measures that provide information about earnings per share during the accounting period. Most studies have focused on earnings per share despite the small number of statements and the benefits of information to investors (Zhang , 2008 : 70). There is a strong relationship with earnings per share and information gains for investors. Bank disclosure has a positive impact on the bank's profitability and reputation, and this is positively reflected in the price of the bank's common stock, which is reflected in the bank's profitability during the financial period (Asem et al., 2021: 93).

The second requirement: Analysis and testing of correlation relationships between variables

Analysis and testing of the correlation relationship between the use of technology and enhancing the bank's profitability (testing the first main hypothesis): -

In order to make an accurate decision regarding the validity of the first main hypothesis, which is (there is a significant correlation relationship between the use of technology and the bank's profitability), as follows: -

Table 1 indicates the existence of a positive correlation relationship between the variable of technology use (X) and the variable of bank profitability (y), as the value of the simple correlation coefficient between them reached (0.983), and this value indicates the positive relationship between the use of technology and enhancing the bank's profitability in the banks of the study sample. What supports the positive correlation relationship is that the calculated (t) value reached (4.823), which is greater than the tabular (t) value of (2.39) at the level (1%).

Table 1.

Results of the correlation between technology and bank profitability with calculated (t) values (n=80).

Tabular (t) value	Bank profitability (y)	Dependent variable Independent variable
2.39	R= 0.983	Use of technology X
Confidence level 0.99	4.823	Calculated (t) value
There is a positive and significant correlation at the 1% level between the use of technology and bank profitability		Type of relationship

Table 1 also shows the existence of a positive correlation between technology and bank profitability: -

There is a positive correlation between the use of technology (X) and bank profitability (y) and the value of the simple correlation coefficient was (0.983) and at the level of (1%). What supports the positive correlation is that the calculated (t) value reached (4.823) which is greater than the tabular (t) value of (2.39) and is considered significant at the mentioned level. From the above, it is clear that the use of technology is positively related to enhancing bank profitability.

From the above, it is clear that there is a strong positive correlation between the use of technology and bank profitability, which leads to accepting the first hypothesis which states (there is a significant correlation between the use of technology and bank profitability).

Analysis and testing of the correlation between financial operations and the use of technology (testing the second main hypothesis):-

Table 2.

Results of the correlation between technology and financial operations with calculated (t) values (N=80).

Tabular (t)	Value financial operations (M)	Intermediary variable Independent variable
2.39	R= 0.918	Technology
Confidence level 0.99	4.000	Calculated (t) value
There is a positive and significant correlation at the 1% level between the use of technology and financial operations		Type of relationship

Table 2 shows the existence of a positive correlation between the use of technology and financial operations: There is a positive correlation between the use of technology (X) and financial operations (M). The value of the simple correlation coefficient was (0.918) at the level of (1%). This is confirmed by the calculated (t) value of (4.000), which is greater than the tabular (t) value of (2.39) and is considered

significant at the mentioned level. From the above, it is clear that the use of technology is related to the performance of financial operations.

From the above, it is clear that there is a positive correlation between the use of technology and financial operations. This leads to accepting the second main hypothesis that emerges, which states: (There is a significant correlation between the use of technology and financial operations). Analysis and testing of the correlation between the bank's profitability and the performance of financial operations (testing the third main hypothesis): - (There is a significant correlation between the bank's profitability and financial operations).

Table (17) indicates the existence of a positive correlation between the bank's profitability (Y) and financial operations (M). The value of the correlation coefficient reached (0.941) at the (1%) level. What supports this result is that the calculated (t) value reached (4.823) at the same previous significance level.

Table 3.

Results of the correlation between the bank's profitability and financial operations with the calculated (t) values (N=80).

Tabular (t)	Value financial operations (M)	Intermediate variable Dependent variable
2.39	R= 0.983	Bank profitability Y
0.99 Confidence level	4.823	Calculated (t) value
There is a positive and significant correlation at the 1% level between the bank's profitability and financial operations		Type of relationship

From the above, it is clear that there is a positive correlation between the bank's profitability and financial operations, and this leads to accepting the third main hypothesis, which states: (There is a significant correlation between the bank's profitability and financial operations). Testing the impact of using technology to improve the bank's profitability: - This paragraph deals with testing the impact of operations performance in enhancing the bank's profitability, which is included in the fourth main hypothesis, which states that (there is a significant impact of using technology to improve the bank's profitability). The hypotheses were tested as follows: - In order to prove the above hypothesis, the (F) test was used to analyze the significance of the simple linear regression model, as shown in Table (4), which was built according to the following formula: -

$$* X 0.633 + 1.392 = y$$

Since y represents the dependent variable (Bank profitability).

And X represents the independent variable (Technology).

Table 4.

Estimating the parameters of the simple linear regression model to measure the impact of technology on the bank's profitability (N=8).

Interpretation coefficient R ²	Value(F)		X technology	CONSTANT	Variable Independent X Variable Dependent Y
	Tabular (1%)	Calculated	B	A	
0.966	7.08	85.7	0.633	1.392	Bank profitability Y

It is clear from the results shown in Table (18) the following: -

- 1- The value of (F) calculated for the simple linear regression model for the use of technology (X) reached (85.7) which is greater than the value of (F) tabular amounting to (7.08) at a significance level (1%). This indicates the stability of the regression coefficient ($30.63 = b$) at the mentioned significance level, i.e. a change of one unit in the use of technology affects improving the bank's profitability by an amount of (0.633) This means that the significance of the simple linear regression model is proven.

Accordingly, technology (X) has a significant effect in enhancing the profitability of bank (Y).

- 1- The value of the interpretation coefficient (R²) reached (0.966), which means that the use of technology (X) explains (6.96%) of the changes that occur in improving the profitability of bank (Y), while the remaining percentage of (4.3%) is due to the contribution of other variables not included in the current study plan.

From the above, it is clear that the hypothesis (there is a significant effect of using technology in improving the profitability of the bank) is valid.

Conclusions and recommendations

Conclusions:

- 1- Modern technological progress has been positively reflected in the banking sector through the modern development of information and communication technologies, which has led to improvements in electronic banking services, which has led to the speed, ease and accuracy of completing transactions, which has become an opportunity to increase competitiveness between banks, an attractive factor for customers and increased profitability.

- 2 - Different forms of modern technology services have emerged depending on the stage of technological progress, ATMs and different types of electronic cards.

- 3-Financial performance is an indicator of profitability that banks seek to achieve, and the factors affecting the profitability of commercial banks are internal factors represented by bank management, capital size, cost, liquidity ratio, bank size, number of branches, resource utilization, quality of clearing services, and other external factors represented by economic conditions, monetary policy, competition, banking awareness, interest rates and exchange rates.

- 4-There is a statistically significant relationship between the use of technology and the profitability of the bank, which indicates a positive relationship between technology and the profitability of the bank.

- 5-There is a statistically significant relationship between the use of technology and the performance of financial operations, which indicates that there is a positive correlation between technology and the performance of financial operations.

- 6- There is a statistically significant relationship between the bank's profitability and the bank's financial operations, which indicates that there is a positive relationship between the bank's profitability and the performance of financial operations.

7-There is a statistically significant relationship between technology and the bank's profitability, which means that technology has a positive impact on the bank's profitability and contributes to increasing the bank's revenues.

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