



# The Role of Financial Technology In Promoting Modern Management Accounting In Commercial Banks: An Analytical Study of The Opinions of A Sample of Administrative Leaders In Private Banks In The Middle Euphrates Region

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**Abstract:** The current research aims to uncover the role of financial technology through its dimensions (security, digital payment systems, social impact, innovation, perceived usefulness) in enhancing modern managerial accounting for commercial banks through its dimensions (activity-based costing, total quality management, balanced scorecard) among managerial leaders in private banks in the Middle Euphrates region. This objective arises from addressing the posed problem, which was summarised in the question: Is there a role for financial technology in enhancing modern managerial accounting in the commercial banks under study?. To address this issue, the current research focused on a questionnaire tool, and accordingly, the research sample consisted of (112) administrative leaders. The research was based on a main hypothesis stating that there is no statistically significant relationship between financial technology and modern management accounting. The study problem was represented by the main question: to what extent does financial technology contribute to enhancing the applications of modern management accounting in private commercial banks in the Middle Euphrates region? The analytical descriptive method was used to achieve the research objectives and prepare its tools, using statistical programs (AMOS.V.29, SPSS.V.29). The research results indicated that financial technology represents a pivotal factor in developing modern management accounting systems, as it contributed to improving the accuracy of financial data and the speed of access to it, thereby supporting the administrative decision-making process.

**Keywords:** Financial Technology (FT), Modern Management Accounting (MMA), Commercial Banks (CB).

## Introduction

The last two decades have seen a rapid digital transformation of the nature of business and banking services, where technology is now a strategic component in creating competitive advantage and operational efficiency for financial institutions (Faccia, 2023). In this regard, FT is an integrated system that integrates digital technologies with financial and accounting services to offer innovative solutions that contribute to the efficiency of financial performance and administrative control (Machkour & Abriane, 2020). MMA also plays a

critical role in facilitating decision-making and economic efficiency with the use of newer approaches such as activity-based costing, stable tallies, and total quality management (Rahadjeng & Fiandari, 2022). The combination of FT with management accounting can be a critical method for enhancing the quality and precision of financial information and enhancing the planning, control, and evaluation processes of the bank (Hansen & Flyverbom, 2015). The purpose of this study is to examine the relationship between FT and MMA, and the effect of digital transformation in administrative decisions and the quality of financial performance in Iraqi private banks (Hansen & Flyverbom, 2015). This part is important because private commercial banks play a fundamental role in financial and investment activity in the Iraqi economy, especially in the Middle Euphrates region (Shaikh, 2020). While the use of FT has expanded in some banks, the extent to which it has contributed to the development of MMA practices has not been fully understood and deserves an analytical examination of administrative leaders in this sector (Mufidah et al, 2023).

## Methodology

### First: The Research Problem

Given the pace of innovation in the financial and banking sectors, FT, one of the innovations that has transformed the way financial and accounting management is conducted in banking institutions, has become one of the most important innovations (Palmié et al, 2020). These innovative modern digital tools, including electronic payment systems, big data analysis, and artificial intelligence, are key drivers of improved operational efficiency and enhanced accuracy and transparency in accounting reports (Hoyer et al, 2020). Although some Iraqi banks have implemented these technologies, the extent to which FT contributes to the development and utilization of advanced management accounting tools continues to pose several research questions, particularly considering the difficulties in digital infrastructure and the absence of technical and administrative awareness in some private banks (Ozili, 2018). The study's main inquiry is: How much does FT help to enhance MMA applications in private commercial banks in the Middle Euphrates region?

### Second: The Importance of the Research

narrowing the gap in accounting research in the arena of applying FT in general, and to improving MMA in particular. This will have a positive impact on stakeholders and the accounting and auditing profession. This study may also contribute to developing a conceptual framework for financial accounting that aligns with the digital transformation and the contemporary technological business environment.

### Third: Research Objectives

The study's main goal is to determine whether the use of FT in commercial banks has improved or enhanced MMA and to assess the validity of the earlier hypothesis.

#### Fourth: Hypothetical plan

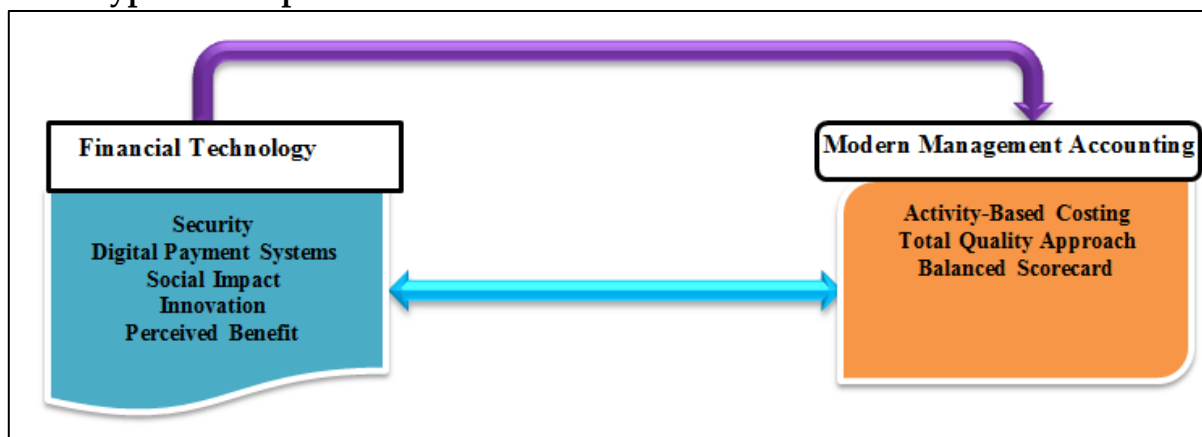


Figure 1. Hypothetical diagram

#### Fifth: Research Hypotheses

In light of its research questions and objectives, the research is based on the following hypotheses:

- 1- There is no statistically significant relationship between FT and MMA.
- 2- There is no statistically significant impact of FT on MMA.

#### Sixth: Research Sample

The study population represents private banks in the Middle Euphrates governorates (Karbala, Najaf, Babil, Diwaniyah & Muthanna), totaling (32) banks. This constitutes the study population, as it is the sector that meets the objective conditions for the success of FT and management accounting in private banks. The study sample is a group of managerial leaders in private banks in the Central Euphrates governorates, totaling (122) administrative leaders.

### Result and Discussion

#### Part Two: The Theoretical Aspect

##### First: The Concept of FT

The world is currently witnessing a wave of transformation from a cash cheap to a cashless cheap, attributed to advanced FT. The world is in a state of constant evolution, and this development is bound to impact the banking sector and payment methods. FT has led to a change in traditional banking business models and the emergence of new methods for non-cash transactions and payments. This transformation will significantly impact the banking sector and the usual methods of payment and money transfer. As a result, financial institutions must adapt to this technological advancement and implement new solutions in their services (Srouji, 2020). FT, or FT, applies technology and technical innovations to the financial services manufacturing (Palmié et al, 2020). FT seeks to enhance and expedite financial transactions and update conventional financial operations to current technology (Abad-Segura et al, 2020).

FT is a broad category that covers the use of a variety of applications and tools that enhance financial operations, such as smart banking requests, electronic expenditures, progressive financial analytics, e-commerce, digital currencies (cryptocurrencies), and other financial technologies (Guo & Polak, 2021). FT also improves customer experience and saves time and effort by allowing customers to access their bank accounts and make their financial transactions using smart banking applications and online banking services (Hoyer et al, 2020). It also offers instant and safe digital payment and transfer services, allowing for more convenient and versatile payments (Alam et al, 2021). In addition, advanced financial analytics and data technology assist in the analysis of financial data, which leads to better financial decision-making (Cheng et al, 2021). FT also leads to new ways of financing and investing, such as crowdfunding and digital currencies, and promotes innovation and transparency in the financial services industry (Suryono et al, 2020).

### **Second: The Importance of FT**

FT is of great importance in the financial services sector and its development, as it provides interactive and flexible means for customers to access financial services, manage their accounts, and conduct transactions with ease and speed (AlMomani & Alomari, 2021: 1794). FT works to utilize and capitalize on opportunities in a way that enables an organization to compete in financial services (Firdaus & Aryanti, 2019), in addition to bringing about changes in the organization's style and structure in a way that contributes to improving financial services facilities (Mufidah et al, 2023). FT also seeks to offer new financial services or enhance the provision of existing financial services, by lowering the number of frictions between the request for financial services and the provision of such services (Ozili, 2018), it also improves the utilization of financial services offered by existing financial institutions, or replaces them, which generally leads these institutions to adopt FT solutions and technologies to upgrade their services, thus strengthening their competitive position (Barajas et al, 2020). Financial business players are offering convenience in terms of technology-based financial management (Novitasari&Sulistiyowati, 2023).

### **Third: Dimensions of FT**

FT can be measured through five dimensions (Rahadjeng & Fiandari, 2022):

#### **1. Safety**

Safety is the knowledge, interest, and skills demonstrated by employees that inspire credibility and trust. (Dehghan et al, 2012) stated that employees' knowledge is their ability to instill trust in customers, thus making customers feel confident and secure. It also refers to the availability of safety and security devices and associated procedures to protect customer property (Al-Neyadi et al, 2018).

#### **2. Digital Payment Systems**

FT to users and customers, providing them with a range of different payment methods using smartphones, external financial transfers, and managing e-commerce payment flows, among other things (Pazarbasioglu et al, 2020). FT has significantly improved financial transaction processes. Many companies provide electronic payment technologies through websites, apps, and platforms to make bill payment faster, safer, and

easier, with many stores replacing cash with mobile wallet applications, which saves time and effort, and local money transfers via mobile phones even without having a bank account, which allows users to send and receive money via mobile payment applications or mobile money transfer services (Shaikh, 2020).

### **3.Social Influence**

When a technology acceptance model is introduced to a group of potential users, they will be highly motivated to accept the new technology because of social pressure and cultural influence, but they will differ in their ability to comprehend and internalize the technology based on demographic characteristics such as age and gender. Younger individuals and females may find themselves more capable of handling new technologies than older individuals and males. These differences in the ability to absorb technology may affect its diffusion and adoption by different users (Byun et al, 2018).

### **4. Ease of Features**

With the rapid advancement of technology, it has been widely applied in the field of finance. In this era of technological development (Machkour & Abriane, 2020: 496), people are required to innovate and influence skill in the field of finance. One of the technological growths in the arena of money is the emergence of IT-based lending and borrowing service providers. Technology-based financing systems provide a means of connecting financing applicants with lenders online. Applicants submit their financing applications online, and the data and information provided are analyzed and evaluated using automated analysis and artificial intelligence techniques (Maulana et al, 2022).

### **5. Perceived Benefit**

FT provides many solutions to improve corporate management, and we found some of them specific to banks, such as blockchain technology, which relies on FT to develop solutions for recording transactions, processing information, risk management, tax management, and others (Scott et al, 2017). These services also represent the interests of institutions and banks, as they offer solutions specific to the banking sector by collecting and analyzing large databases, thus improving customer relationship management (purchasing behavior, savings, and customer career paths) and financial services (financial solvency). This also applies to the field of financial security (Hansen & Flyverbom, 2015), through early detection of any fraudulent behavior in customer behavior, such as phone geolocation or encryption of sensitive data and information. FT also analyzes risks and provides tools to assist in decision-making regarding financial portfolio management and facilitates regulatory reporting (Faccia, 2023).

### **Fourth: The Concept of MMA**

The set of procedures involved in gathering and preparing data and providing management at all levels with the information they need to help with policy formulation, planning, coordinating and rationalizing decisions, monitoring, and performance evaluation is known as management accounting (Al-Karim et al, 2017). described it as the use of accounting methods to supply data to support decision-making and company activity

planning at all administrative levels (Jadou, 2016). The purpose of management accounting is to supply and gather the data that management may require in order to make decisions and assess the results of those decisions and actions. Management accounting helps management with day-to-day operations and future planning by utilizing both estimated and historical data. In order to assist management in making wise financial decisions about pricing or selecting between available options, such as whether the company should produce a specific product or buy it from others, or whether the company should continue producing a specific product or stop producing it, management accountants are frequently tasked with identifying available business alternatives and creating reports to assess each alternative (Strumickas, 2010).

According to (Karagiorgos et al, 2020), It is a collection of various methods and techniques adopted by the accountant and applied with a high degree of personal competence, skill, art, and scientific and practical ability to support management in achieving the greatest degree of efficiency achieved by the organization. It can also be described as a tool for supplying data and information to different organizational levels for use in organizing and managing different activities. Data and information are continuously supplied to help with routine and non-routine decision-making to address issues that management faces in its day-to-day operations (Birnberg, 2009).

It is also defined as a branch of accounting used to identify, measure, collect, and analyze data to obtain financial and non-financial information that management uses for planning, control, and decision-making (Talha, 2010). defines it (Habib, 2017) as an information system that provides an organization with appropriate information to assist it in planning, controlling, evaluating performance, and making appropriate decisions for the organization's success.

#### **Fifth: Objectives of MMA**

MMA aims to achieve the following objectives (Cooper, 2006), (Gliubicas, 2012), (Fadali, 2016):

1. Providing the information necessary for project management to make various administrative decisions and plan and formulate future policies.
2. Assisting managers in directing and monitoring the organization's operations.
3. Dedicated to motivating managers and employees to serve the organization's goals by analyzing and evaluating the bias and accuracy of the information provided to users at the appropriate cost and time.
4. Evaluating performance and ensuring that employees are efficient in achieving objectives at the lowest possible cost.
5. Assessing the organization's competitive position and working with other members of the management team to ensure the organization's long-term competitive advantage.
6. Assists in making investment decisions, planning, and controlling the funds necessary to ensure appropriate profits.
7. Evaluating the performance of the responsibility center.

## **Sixth: MMA Techniques**

Modern scientific advancements and the effects of technology change necessitate an integrated perspective of organizations' operations and activities founded on a distinct and well-defined philosophy. In a cutthroat business setting, this enhances management efficacy and efficiency. In order to accomplish this, it is necessary to examine the operations of every organization over time, make both horizontal and vertical comparisons, and use all cutting-edge and contemporary management accounting methods and procedures (Al-Sayyed, 2015).

### **1. Activity-Based Costing**

One of the most well-known and significant MMA techniques is activity-based costing (Chow, 2006). Activity-based costing is a technique or strategy for raising the value of expenses that takes activities into account as the main cost target and also distributes expenses to various uses based on the costs of those activities, such as consumers, commodities, and services (Strumickas, 2007). The activity-based costing system gained significant acceptance among American and European organizations in the 1980s, especially after the limitations of traditional accounting were recognized (Watts, 2014).

The activity-based estimate scheme is defined as incorporating costs with activities as the primary cost object, using activity costs as the basis for determining the cost of other cost objects, such as products and services (Chow, 2006:13). This method improves the traditional costing system by making activities the primary purpose of costs, allocating indirect costs, or so-called resources, to the activities that benefit from them, and then allocating the charges of these activities to foodstuffs (Shaheen et al, 2022).

### **2. Total Quality Management (TQM)**

One of the newest management theories is Total Quality Management (TQM), which is based on a set of concepts and guidelines that every department can use to attain peak performance. It seeks to guarantee quality within the company and use quantitative techniques to continuously enhance its offerings (Strumickas, 2010).

It was termed by (Al-Taie et al.,2015: 4) a modern management concept based on a set of ideas and principles aimed at improving the quality of production and services, achieving better performance, achieving contractual ratios, and working to win customers. indicated that (Shah, 2011) it is superior performance for consumer prices through the cooperation of managers and employees to provide consumers with valuable quality through proper work performance, most importantly, saving time in each job.

The Federal Quality Institute described Total Quality Management (TQM) as a comprehensive application approach aimed at meeting customer needs and expectations. Operations and services are not continuously improved through practical approaches (Ostaev et al, 2019). TQM is an approach that prioritizes serving customers by offering high-quality products or services, assisting the business in achieving its objectives effectively and efficiently, continuously striving to satisfy customers, and spotting operational faults (Shah, 2011).

### 3. Balanced Scorecard

It is defined as a comprehensive system for measuring a company's strategic performance. Industrial and includes a comprehensive set of performance measures, looking at a company's performance from four aspects (Strumickas, 2010):

- 1) Financial performance: revenue growth, profitability, return on investment.
- 2) Customer relations: customer satisfaction, customer service.
- 3) Internal operations: internal service quality, new product innovation.
- 4) Human resources: performance development, learning, and innovation.

The balanced scorecard is defined as a set of monetary and non-financial measures that work efficiently and effectively to translate a company's plans and policies, link them to its strategic objectives, and monitor performance and the extent to which objectives are achieved (Ostaev et al, 2019).

### Part Three: The Practical Aspect

#### 1. Coding the Study Variables

It is necessary to describe and differentiate the variables included in the measurement in order to examine and evaluate the measuring instrument and make sure it is consistent with the sample under study. This helps to make the process of statistical analysis easier. The symbols and acronyms listed in Table (1) were used in place of the study's variables (FT, MMA)

**Table 1.** Coding of study variables

variables	Dimensions	NO.	symbol
Financial Technology	Security	5	<i>FTSA<sub>1</sub>- FTSA<sub>5</sub></i>
	Digital Payment Systems	5	<i>FTDP<sub>1</sub>- FTDP<sub>5</sub></i>
	Social Impact	5	<i>FTSI<sub>1</sub>- FTSI<sub>5</sub></i>
	Innovation	4	<i>FTIN<sub>1</sub>- FTIN<sub>4</sub></i>
	Perceived Benefit	4	<i>FTPB<sub>1</sub>- FTPB<sub>4</sub></i>
Modern Management Accounting Techniques	Activity-Based Costing	9	<i>ABC1-ABC9</i>
	Total Quality Approach	6	<i>TOA1- TOA6</i>
	Balanced Scorecard	7	<i>BS1- BS7</i>

#### 2. Normal Distribution Test

The normal distribution of the study data is one of the requirements for employing analysis. The Shapiro-Wilk and Kolmogorov-Smirnov tests, as well as graphs, can be used to confirm this claim. The distribution is normal if the numbers resemble a bell. The researcher created the normal distribution shapes of the data for the dimensions used in the study using the statistical program (SPSSvr.29). This demonstrated that the data distribution is, in fact, a normal distribution, which is proof of the availability of the assumption in this respect. The study data's normal distribution is shown in Table (2).

**Table 2.** Normal distribution of study data

variables	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
Financial Technology	0.075	95	0.132	0.986	95	0.092
Modern Management Accounting Techniques	0.145	95	0.128	0.967	95	0.184

The table above shows that all the Sig results for the normal distribution test are higher than (0.05), which means that the data follow the normal distribution (Mahmoud, 2013: 388), and that the results obtained can be analyzed.

### 3. Structural Structure of the Measurement Tool

To determine the validity of the scale and the stability of the questionnaire for the current variable, the researchers relied on the Cronbach's alpha test, which showed that the coefficient values for the main variable studied and its subvariables ranged between (0.925 - 0.896). These values were considered acceptable in the descriptive study because they were high compared to the standard value of Cronbach's alpha (0.70). The values of the construct validity coefficient were also found to be relatively high and within the accepted standard. This research tool is suitable for final application due to its high accuracy, validity, and reliability. Table (3) shows the reliability and validity of the coefficients of the measurement tools used in this study.

**Table 3.** Reliability and validity coefficients at the level of the main variables

variables	Cronbach's alpha	Structural reliability coefficient
Financial Technology	0.925	0.825
Modern Management Accounting Techniques	0.896	0.849

## 4. Descriptive Statistics for Study Variables

### A. Descriptive Statistics for the FT Variable

The statistical program (SPSS V. 29) was used to extract the arithmetic means, standard deviations, and relative relevance of the study items. According to Table 4's results, the FT variable's overall average was 3.16 with a relative relevance of 63%, suggesting that the banks under investigation had a medium level of FT adoption. Additionally, this average shows a moderate level of acceptance of the use of contemporary financial technologies, with an obvious need to expand both their use and knowledge of their importance. On the other hand, the first component, social influence, had a relative value of 66% and an importance of 3.29, indicating that user orientations and social variables had a major impact on FT adoption.

**Table 4.** Description of the FT variable

N:	Dimensions	Mean	S.D	Relative Importance	Importance Ranking
1	FTSA	3.14	0.819	63%	4
2	FTDP	3.07	1.103	61%	5
3	FTSI	3.29	1.208	66%	1
4	FTIN	3.15	0.925	63%	3
5	FTPB	3.17	0.804	63%	2
Financial Technology Variable		3.16	0.821	63%	

## B. Descriptive Statistics for the MMA Variable

Table (5) shows that the overall regular for the MMA mutable was (3.19), and the relative importance of this variable was (64%) reflecting a moderate level of application of MMA practices in banks, which implies a partial adoption that can still be developed to further improve the efficiency of administrative decisions and institutional performance. The Balanced Scorecard was ranked first at (3.25) and (65%) relative importance, followed by activity-based costing (3.18) and (64%) relative importance, suggesting that organizations are starting to realize the value of integrated measurement of monetary and non-financial performance of strategic goals, as well as limited application of this important tool for accurate cost allocation and operational efficiency. The Total Quality Management method originated in third home, with an regular of (3.16) and a relative rank of (63%). This reflects a moderate interest in refining excellence finished accounting does that support operational fineness.

**Table 5.** Description of the MMA variable

No:	Dimensions	Mean	S.D	Relative Importance	Importance Ranking
1	ABC	3.18	1.191	64%	2
2	TOA	3.16	0.823	63%	3
3	BS	3.25	1.191	65%	1
Modern management accounting variable		3.19	1.422	64%	

## 5. Testing the Correlation Hypotheses

**A. H1:** There is a statistically correlation between FT and MMA.

Table 6 shows a statistically significant positive correlation (0.476, medium according to Agunbiade et al., 2013) between the security dimension and MMA, suggesting that the security dimension of FT has a positive and significant impact on the MMA process in banks.

**Table 6.** Correlation matrix between FT and MMA

	1	2	3	4	5	6	7
FTSA	1						
FTDP	.951**	1					
FTSI	.834**	.891**	1				
FTIN	.773**	.790**	.898**	1			
FTPB	.722**	.752**	.755**	.834**	1		

FT	.928**	.951**	.946**	.927**	.872**	1	
MMA	.476**	.523**	.447**	.446**	.602**	.538**	1

## 6. Testing Impact Hypotheses

**H2:** There is a significant influence relationship between FT and MMA.

It is noted after the results of Table (7) that interest of administrative leaders in FT in the private banks studied contributes to enhancing the capabilities of employees in MMA. This means that private banks' support for the capabilities of administrative leaders regarding FT by one unit enhances their capabilities in MMA by (0.501) and reduces the error rate by (0.043). This incomes that the intended F value of (138.583) is higher than the table value. This explains why the critical value of (11.651) is higher than 1.96. This leads to the assumption of a positive influence relationship between FT and MMA, which indicates the interest of private banks in developing their FT.

**Table 7.** Standard modeling outputs for FT in MMA

	path		Regression parameter	Standard error	F	C.V	R <sup>2</sup>	Sig.	P
FT	--->	MMA	0.501	0.043	138.583	11.651	0.226	0.000	***

It is also clear that FT contributes to explaining (0.226) of the square of the variance in the impact on MMA, while the remaining value of (0.774) represents issues outside the scope of the current study.

## Conclusion

The results indicated that financial technology plays a pivotal role in the development of modern managerial accounting systems, as it contributes to improving the accuracy of financial data and speeding up access to it, thus supporting managerial decision-making. It is also noted that the focus of commercial banks on using digital technologies, such as electronic payment systems and intelligent financial analysis, has helped enhance the effectiveness of activity-based costing systems by reducing errors and improving the tracking of resource flows. This demonstrates that innovation in digital financial services strengthens the quality of accounting information systems, thereby increasing the capacity of bank managements for integrated planning, control and evaluation.

On the other hand, the results showed that technical infrastructure and cybersecurity are two essential conditions for the successful integration of financial technology into modern management accounting, as their weakness negatively affects the reliability of financial systems. It was shown that financial technology contributed to improving the level of transparency and financial disclosure, which enhances trust between banks and customers and strengthens the position of local banks in the market. Based on this, it is observed that the perceived benefit of using financial technology was a motivating factor for adopting modern management accounting methods, particularly the balanced scorecard and total quality management approaches.

The research recommended the necessity of enhancing investment in digital infrastructure for private banks by developing secure technological systems that enable the effective implementation of modern management accounting methods and mitigate operational risks. Furthermore, emphasis should be placed on the importance of developing employees' technical capabilities in the financial and accounting fields through specialised training programmes in financial technology and data analysis. This, in turn, will enhance their ability to utilise modern technologies to support managerial decision-making. A comprehensive digital strategy should also be adopted to integrate financial technology with management accounting systems, focusing on process automation, improving data quality, and increasing the speed of access to accurate accounting information. Additionally, banks should work on activating modern management accounting tools, such as the balanced scorecard and total quality management, using financial technology applications to improve performance measurement and direct resources towards achieving strategic objectives. Finally, efforts should be made to enhance cooperation between private banks and fintech companies to develop innovative financial and accounting solutions that contribute to increasing operational efficiency and achieving a competitive edge in the Iraqi banking market.

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