



REFLECTION OF CLOUD COMPUTING ON IMPROVING FINANCIAL ACCOUNTING SYSTEM: AN ANALYTICAL STUDY OF OPINIONS OF A SAMPLE OF EMPLOYEES IN COMMERCIAL BANKS

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Article history:	Abstract:
<p>Received: 28th November 2023 Accepted: 26th December 2023 Published: 30th January 2024</p>	<p>The current research aims to reveal the reflection of cloud computing on improving the financial accounting system among a sample of workers in commercial banks, and the study adopted the management of the questionnaire in order to measure the level of availability of its variables, and on this basis the study relied on the statistical package of the program (SPSS.V.28) in order to extract the results using the arithmetic mean, standard deviation, correlation coefficient, and impact factor, and therefore the study has reached a set of results stated in Cloud computing can help improve the financial accounting system of commercial banks, as cloud computing provides a common, scalable and rapidly adaptable information infrastructure, which can lead to improved efficiency and effectiveness in managing banking operations and improving financial performance. Commercial banks can use cloud computing services to solve large data storage and processing problems, This allows them to analyze data faster and more accurately, improve risk management and address fraud and financial fraud, and the study also made a set of recommendations, the most important of which It is also important to emphasize that cloud computing allows commercial banks to reduce costs and large investments in IT infrastructure, as commercial banks can rely on the existing cloud infrastructure to meet their technological needs..</p>

Keywords: cloud computing, financial accounting system, commercial banks

I. INTRODUCTION

The world in the current era is moving rapidly to keep pace with the continuous updates in the fields of communications, technology and computers, which have remarkably affected all aspects of life, especially in light of the enormous effects in the world and in conjunction with the Corona pandemic, which made the use of technology an imposition on all different institutions and companies in order to be able to continue to provide their services, and among those technological means are For the electronic cloud, which helps in managing services distinctively and efficiently through its ability to store huge amounts of data and retrieve it easily when needed, as well as easy access to this information as soon as possible and from anywhere without being in the institution, and also enables users and customers to access their data and benefit from it through many applications and tools without the need to own computers with high specifications, which helps any institution to have a competitive advantage and high capabilities in the achievement of and perform business (Halalu et al.,2022:37).

The issue of cloud services emerges as an effective tool, if used correctly can help gain a competitive advantage, as the concept of cloud services arose from the quest to eliminate all waste operations that do not contribute to adding new value in the activity, which helps to achieve the competitive advantage of banks, where the researcher derives the basic idea of this study in an attempt to provide the banks included in the study with knowledge and theoretical data about the role of cloud services in improving the financial accounting system.

Accordingly, this study deals with the most important foundations that can be invested in order to employ cloud computing services to ensure a significant improvement in banking performance and improve its financial system, and this is shown in Figure (1)



II. THEORETICAL BACKGROUND AND HYPOTHESIS DEVELOPMENT

The global trend in many organizations is to use the Internet as a large digital repository to store and analyze customer and company data and to use a number of applications that allow users through quick and accurate access to data from anywhere, the National Institute of Standards and Technology (NIST) defines the **electronic cloud** as the next step in the continuous development of information systems. Meet consumer demand efficiently and use fewer physical resources online. (Abu Naji et al., 2019, 680).

According to Haines 2018, cloud **computing** is defined as a technology that provides beneficiaries with special services and functions to save costs and make information available to the largest possible number of users. It also enables users to store, retrieve, process, and share data anytime, anywhere, i.e. cloud storage. With high-performance and online security mainframes.

As Salmi (2016) defines cloud computing as: a technology that allows those interested in programming to store programs and information they write on websites instead of storing it on the organization's computers or personal computers.

Cloud computing is a technology based on transferring computer processing and storage space to the so-called cloud, a server device that can be accessed over the Internet, converting software from products to services and allowing users to access it online without the need for knowledge, experience and control. The concept of cloud computing or cloud services generally means services performed by devices and programs connected to a network of servers that carry their data in a virtual cloud, after placing a special network unlock code, ensuring their permanent and uninterrupted connection with different devices, after which they can access it at any time and from anywhere. (Abdullah et al., 2017, 558)

The application of cloud computing and the programs it allows of interest to all users alike has reduced dependence on the human element because many operations are carried out through the cloud, its application leads to achieving speed in time when providing services accurately and saving cost that contributes to achieving a competitive advantage, and among the benefits of applying cloud computing services is what he mentioned: (Salman,2016, 47), (Al-, 2013, 9), (Al-Khader,2015, 35):

- 1- Transforming ideas into products by accelerating the completion of work resulting from transforming ideas into products accompanied by unlimited growth and development of business.
- 2- Make IT resources available to all agencies and organizations regardless of size or geographical location.
- 3- The possibility of completing new works easily.
- 4- Reduces operating risks because it protects server information and increases uptime.
- 5- The ability to benefit from services, applications and data at any time and anywhere.
- 6- Reduce the cost of equipment, materials, applications and human resources.
- 7- Ease of implementation, as organizations can rely on the deployment of cloud computing applications without hardware, licenses, or installation, operation and maintenance services.
- 8- Provide high reliable data, not as vulnerable to damage, destruction and manipulation as electronic computers.
- 9- The ability to continue with the possibility of continuing to provide services in record time.

Cloud computing can be used in banking and finance in general. Cloud computing enables banks to securely and efficiently store financial data and information for customers, employees and other financial institutions and provides easy and fast access to it from anywhere and on any device connected to the Internet (Al-Arrayed, 2016, 44).

In addition, cloud computing can comprehensively provide banking system management services, including financial processing, transfers, cash payments, personal and business services, financial data analysis and reporting (Abdelkader, 2018, 231).

Cloud computing enables banks to provide customers with electronic banking services, such as accessing their online bank accounts and mobile applications, and making transfers, payments and cash transfers in a secure and fast manner, through the ability of cloud computing to measure and control costs, banks can increase efficiency, reduce operating costs and improve customer banking experience. To ensure the security of financial data in the cloud, the financial industry uses advanced protection technologies, including security certificates, encryption, multi-factor authentication, and continuous monitoring of suspicious activity(Al-Khafaji and Al-Hamdan, 2019, 122).

Accounting systems in the cloud can be customized according to the needs of the company or organization. Cloud computing allows companies to choose the right service for them and adapt it to their specific needs, such as human resource management services, CRM systems, or accounting and finance systems.

Cloud-based accounting solutions can be customized in a number of ways: (Al-Hamid,2012, 203),(Al-Ghamdi, 2019, 74).



Choose the best service: Depending on their unique demands and specifications, businesses can select the cloud computing service that best meets their expectations.

Software customization: Businesses can adjust their cloud accounting system to meet their specific requirements with the help of a team of programmers and engineers. User interfaces, features, and functionalities may need to be customized.

Logical customization: Businesses can further modify the cloud accounting system to exactly match their needs by selecting and configuring in a logical manner. Determining procedures, permissions, and reporting structures may be necessary for this.

Increase output and effectiveness: Businesses can design a cloud accounting solution that is customized to meet their unique requirements through customization. Processes can be made more efficient overall, and data accuracy and reporting capabilities can be strengthened as a result of this modification (Al-Mannai,2020, 184).

Providing accurate and trustworthy financial information to external users, including creditors, investors, and regulatory agencies, is the main goal of the financial accounting system. These stakeholders depend on this data to help them make judgments and assessments about the company that are well-informed. Through the provision of reliable financial data, the system helps these parties make informed decisions (William, 2016, p. 52).

To sum up, the financial accounting system is essential to providing stakeholders with accurate and trustworthy financial information. It accomplishes this by abiding by recognized accounting standards and meeting regulatory obligations. By adhering to this, the system promotes openness and empowers stakeholders to make knowledgeable decisions about the operations and financial health of the organization (Abdali,2016, 249).

The importance of the financial accounting system includes: (Al-Ghamdi, 2018, 122), (Al-Abdullah, 2019, 203), (Al-Otaibi, 2018, 98).

An essential component of giving precise and thorough information about a business's financial performance is the financial accounting system. This is accomplished by carefully recording, examining, and condensing every financial transaction; the resulting comprehensive financial reports are then provided.

Stakeholders can evaluate the company's financial performance's advantages and disadvantages by carefully examining the financial statements. A clear picture of the company's financial health and areas in need of maintenance or improvement can be achieved by contrasting actual financial results with predetermined benchmarks.

Cloud computing can be used to manage accounts, process payments, analyze financial statements, and provide regular reporting (Alharbi,2020,13).

Cloud computing enables financial companies to access financial information faster and more efficiently, can increase the availability of information and reduce the risk of financial data loss. With its ability to measure and control costs, cloud computing enables financial companies to increase efficiency and reduce operating costs (Shammari,2019,291).

Among the services offered by cloud computing in the financial system, cloud storage services for financial statements, cloud processing services for payments and remittances, financial data analysis services, and various financial reporting can be mentioned (Goyal,2020,286).

To keep financial data safe in the cloud, various protection technologies are used, such as encryption, multi-factor authentication, and continuous monitoring of suspicious activity. Companies specializing in cloud computing adhere to various security standards to maintain the integrity of financial statements of financial companies and their customers (Rana, 2012, 31).

There are many tools available to improve bank accounting systems using cloud computing, the most important of which are: (Soltani,2020,9).

1. Cloud accounting software: It is a cloud-based accounting software, which allows banks to access financial accounting data anytime, anywhere.

2. Financial analysis software: Banking institutions employ these software applications to examine accounting and financial information, producing a variety of financial reports that improve the decision-making procedure within the bank

3. Financial risk management software: These programs are used to evaluate and analyze various financial hazards, helping users make informed choices to successfully reduce these risks.

4. Project management protocols: By creating rules and structures for monitoring and controlling the bank's various initiatives, these protocols improve project management techniques and cut costs.

5. Customer management software: By managing customer data and streamlining several banking processes, these software applications enhance customer satisfaction and cut down on overhead.

6. Banks may improve their accounting systems and boost their overall efficiency and efficacy by leveraging cloud computing capabilities through the use of these and other cutting-edge solutions.



Through the above, the research hypothesis can be formulated as follows:

The first main hypothesis: There is a statistically significant correlation between cloud computing and the financial accounting system of Iraqi commercial banks.

The second main hypothesis: There is a statistically significant effect of cloud computing in the financial accounting system.

To support this hypothesis, an analytical study can be conducted on a number of commercial banking institutions that have relied on cloud computing in the financial accounting system. The financial and accounting statements of these institutions can be analyzed and compared with organizations that did not rely on cloud computing, to determine the benefits and improvements of cloud computing in the financial accounting system. By conducting a survey of the opinions of employees in those institutions to determine the impact of cloud computing on work efficiency and improving productivity, Figure 1 shows the hypothetical scheme of the study.

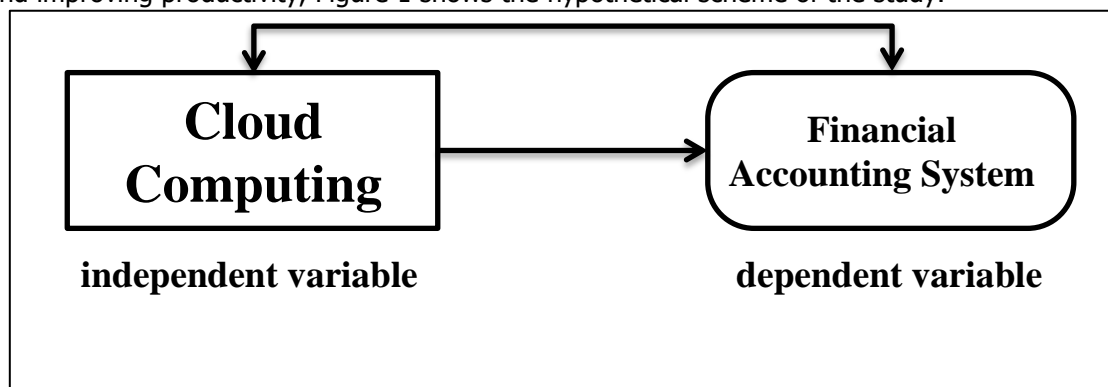


Figure 1 Hypothesis scheme of the study

III. STUDY METHODOLOGY

1. Study problem

The present research challenge revolves around the inadequacy of existing scholarly investigations concerning the role of cloud computing in enhancing the financial accounting systems of banking institutions. While previous studies have touched upon this subject, they have not offered a comprehensive comprehension of the advantages and advancements that cloud computing brings to financial accounting systems. As a result, extensive field study is necessary to explore the impact of cloud computing on banking organizations' financial accounting systems, as well as the advantages and improvements associated with its adoption, The problem of the study can be formulated in an important question: How can cloud computing be adopted to enhance the performance of financial accounting systems?

2. The importance of the study

The use of cloud computing helps improves the efficiency and effectiveness of financial accounting processes. It provides a shared and scalable infrastructure that allows for faster and more accurate data storage and processing, and improved management of assets, liabilities and financial risks. Cloud computing can also support better preparation and analysis of financial and tax reports, helping commercial banks understand and monitor their financial positions more accurately and effectively.

Since cloud computing is a cutting-edge modern technology, studying its role in improving the financial accounting system of banking institutions can help promote development of this area and improve the performance of the accounting system in the future.

3. Scales and sample of the study

The study relied on the questionnaire as a measurement tool in providing the results that commercial banks can invest in their internal operations, as it adopted a scale (Alshawabkeh et al., 2022; Ahmed & Muzammil,2022) for cloud computing by (15) items, and the scale (Turki et al.,2022) for the financial accounting system by (22) items, and to measure the stability of the paragraphs of the questionnaire, a sample of workers in Iraqi commercial banks (Ashur Bank, Commercial Bank of Iraq, and the National Bank of Iraq) was approved, and accordingly (140) questionnaires were distributed, and (131) forms were retrieved, (19) damaged questionnaires, and (112) questionnaires valid for analysis. Table 1 shows the measures and stability of the study.

The results of Table (1) showed the stability of the measurement tool towards its paragraphs used to detect the level of availability and stability of cloud computing and the effectiveness of the financial accounting system in commercial



banks surveyed, and the results showed the stability of the effectiveness of cloud computing by (0.890), and the financial accounting system by (0.838).

Table 1 Study Standards and Stability

Variables	Number of paragraphs	Icon	Coefficient of stability	source
Cloud Computing	15	CLC	0.890	Alshawabkeh et al.,2022 ; Ahmed & Muzammil,2022
Financial Accounting System	22	FEZ	0.838	Turki et al.,2022
General rate	37		0.875	

IV. RESULTS

1. Description of the study sample

The results of the study indicated in Table (2) the level of cloud computing availability among the surveyed commercial banks with an arithmetic average rate of (3.85) and a standard deviation of (0.488), and this came as a result of the interest of commercial banks in the twelfth paragraph, with an arithmetic average of (4.27) and a standard deviation of (0.794), while it is noted that commercial banks suffer from weakness in their interest in the ninth paragraph and this is between an arithmetic mean (3.33) and a standard deviation of (0.894), which means that Interest in cloud computing by commercial banks is an important topic at the moment. Cloud computing helps improve efficiency and effectiveness in the performance of banking operations and provide more advanced and secure banking services to customers.

The results also showed that there is a great interest of commercial banks towards improving the effectiveness of the financial accounting system with an arithmetic average of (3.91) and a standard deviation of (0.436), and this came as a result of interest in the eleventh paragraph with an arithmetic average of (4.36) and a standard deviation equal to (0.781), while it is noted that there is a weakness of commercial banks towards interest in the tenth paragraph, and this resulted in an arithmetic mean of (3.51) and a standard deviation of (0.735), which means that the interest of commercial banks in the financial accounting system helps them to Improving efficiency and effectiveness in the performance of banking operations, as commercial banks can use effective financial accounting systems to improve the efficiency of banking operations and reduce the costs associated with them..

Table 2 Description of study variables

No.	Mean	S D	No.	Mean	S D
CLC1	3.75	1.027	FAS6	4.14	0.868
CLC2	3.43	0.887	FAS7	3.86	0.919
CLC3	3.79	0.963	FAS8	3.54	0.782
CLC4	3.70	0.928	FAS9	3.74	0.966
CLC5	3.87	0.954	FAS10	3.51	0.735
CLC6	3.62	0.913	FAS11	4.36	0.781
CLC7	3.43	0.857	FAS12	3.71	0.926
CLC8	3.58	0.965	FAS13	4.22	0.867
CLC9	3.33	0.894	FAS14	3.64	0.919
CLC10	4.02	0.827	FAS15	3.86	0.879
CLC11	3.88	0.867	FAS16	3.53	0.870
CLC12	4.27	0.794	FAS17	4.34	0.766
CLC13	3.85	0.882	FAS18	3.97	0.915
CLC14	3.81	0.906	FAS19	3.68	0.903
CLC15	3.87	0.954	FAS20	4.07	0.791
Cloud Computing	3.85	0.488	FAS21	3.92	0.807
FAS1	4.07	0.927	FAS22	3.63	0.920
FAS2	3.98	0.968	Financial Accounting System	3.91	0.436
FAS3	3.94	0.852			
FAS4	3.56	0.757			



FAS5	3.73	0.910
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2. Hypothesis testing

The first main hypothesis: There is a statistically significant correlation between cloud computing and the financial accounting system of Iraqi commercial banks.

Table (3) notes that there is a statistically significant correlation between cloud computing and the financial accounting system and its amount is (0.783), which means the contribution of cloud computing in the interpretation of (0.613) of the square of variation in the financial accounting system.

Table (3) Strength coefficients and interpretation of the relationship between cloud computing and the financial accounting system

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.783 ^a	.613	.609	.27266

The second main hypothesis: there is a statistically significant effect of cloud computing in the financial accounting system.

The results of Table (4) indicate the proven relationship between cloud computing and the financial accounting system by (173.915) to the calculated significance (F) and this shows the consistency of the measurement tool towards the study sample.

Table (4) Variance coefficients and comparison scores of the relationship between big data and consumer purchasing decision

ANOVA ^b						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	12.929	1	12.929	173.915	.000 ^a
	Residual	8.178	110	.074		
	Total	21.107	111			

Table (5) shows the hypothesis of the impact of cloud computing in the financial accounting system, as increasing cloud computing by one standard value contributes to improving the financial accounting system by (0.700), which means reducing the error rate to (0.053) and proving the significance of (T) calculated by (13.188).

Table (5) Hypothesis of impact

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.219	.206		5.923	.000
	cloud computing	.700	.053	.783	13.188	.000

V. DISCUSSION OF RESULTS

First: Conclusions

1. The results showed that there is a positive relationship between cloud computing and the financial accounting operations of the banks in the research sample, which means that cloud computing contributes to improving the efficiency and effectiveness of bank operations management and improving banking performance.
2. The studied sample is interested in providing infrastructure and information based on cloud computing in order to develop the capabilities of the banks in the research sample to allow them to analyze huge data accurately and at high speed and manage risks better.
3. The studied sample is keen on managing risks in order to achieve security, privacy, and compliance with the procedures that preserve the data of customers it deals with. It also requires the attention of the studied sample to improve their banking channels by providing automatic exchange mechanisms that facilitate the process of financial transactions for customers, which improves the reputation and status of the bank.
4. The studied sample was keen to address problems immediately with the aim of reducing the costs of internal failure, and this improves the cloud infrastructure to meet its internal and external requirements.

Second: Recommendations



1. The studied sample must be keen to achieve a high degree of security and protection of customers' data and privacy, which requires the studied banks to use highly technical and accurate capabilities and tools.
2. It is necessary for the studied sample to focus on using computational computing to provide appropriate opportunities to enhance and support its capabilities in managing and securing the financial data of banks.
3. It is necessary for the studied sample to adopt a solid plan for managing risks organized by cloud computing with the aim of improving the financial accounting system, which requires a strong internal system to manage customer services immediately.
4. It is necessary for the studied sample to focus on appropriate opportunities to enhance and manage its long-term plans carefully and wisely, to ensure the fulfillment of legal and regulatory obligations with its customers. It also requires that the studied sample focus on proposing various mechanisms to reduce expenses and improve the technology infrastructure in order to support its accounting system and manage huge data for customers.

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