

Impact of Utilizing Cloud Accounting on Enhancing the Qualitative Characteristics of Financial Reports (An Empirical Study)

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Abstract

The recent emergence of cloud services, which include cloud accounting has had a great impact on both companies and accountants or accounting firms. Some companies are still hesitant to take advantage of the new technology as are some accountants still reluctant and unsure about it. After decades of using traditional accounting systems, it seems a little difficult for both companies and accountants to switch traditional accounting systems, which they have been using for long in preparing financial reports, with a new technology they have never tried before. The current study explores the impact of cloud accounting on enhancing the qualitative characteristics of financial reports. The researchers utilized a quantitative approach, constructed a five-point Likert-style questionnaire, and distributed it to a sample of 400 Certified Public Accountants (CPAs) in Lebanon, of which 366 responded. The researchers used multivariate analysis to test the hypotheses. The study rendered some important findings mainly that applying cloud accounting positively affects the quality and credibility of accounting information; however, there are various risks to applying cloud accounting including physical, legislation and security, and human risks, which lead to an urgent need for the development of the International Financial Reporting Standards to shun the risks correlated with using cloud accounting.

Keywords: *Cloud computing, Cloud accounting, Financial reporting, Qualitative characteristics of financial reports*

Date of Submission: 10-01-2023

Date of Acceptance: 26-01-2023

I. Introduction

Due to the great and rapid development of the existing technology and the acceleration of its availability to the public, companies have worked on making their applications accessible through the Internet using all types of modern devices such as computers, tablets, and smart phones. According to a report published in the Harvard Business Review (Leonard-Barton & Kraus, 1985) companies on a large scale, specifically in developing countries, face a lot of difficulties with the Internet and with technological devices on which they work. Such difficulties include their inability to provide proper infrastructure for software and the crucial, continuous updates that require qualified personnel who can deal with this modern technology and keep up with the continuous updates that the software performs (Avram, 2013).

The most significant issues that companies in developing countries face include the number of available processors, their speed, and the number and size of the storage. Additionally, optimal use is the goal when dealing with these resources to achieve the companies' objectives with high efficiency and at the lowest cost possible (Microsoft, 2022). As such, cloud computing was efficiently introduced as an innovative model for data processing and storage, allowing companies to operate their business operations based on information technology infrastructure and use it economically and efficiently (Maranda *et al.*, 2022). With the emergence of cloud computing applications, companies around the world have quickly adopted cloud accounting which guarantees permanent and easy access to the network 24/7 (Sastararujji *et al.* 2022).

Although cloud computing offers services and features, it faces many problems and threats that can seriously affect companies' information, reports, and business in general. Many organizations have taken care of exposing these problems and dangers by providing the best practices that can ensure security within cloud computing networks after they had presented the most eminent risks and threats facing cloud computing such as data theft or loss, the dangers of service-providing employees, and others (Javiad, 2013).

The need for cloud computing has emerged as a result of technological developments and the steady increase in the size of data and information, which have greatly affected the ability of companies to control and

manage this information – how to save and then retrieve it, and the consequent increase in storage and the costs for new hardware and software. Thus, cloud computing came as an alternative solution (Hashem *et al.*, 2015).

Cloud computing represents a new technological trend, as it represents the basic environment and platform for the future to provide secure data storage, and convenient internet services, in addition to tremendous computing power (Abualkibash & Elleithy, 2012). Cloud computing delivers computing services via the internet which can be storage services, data analysis tools, or accounting services (Pawar *et al.*, 2022).

Accessing accounting data, processing, and storing it is the responsibility of the provider of cloud services. The cloud allows the analysis of large amounts of information in real-time, which reduces the burden of compiling semi-annual or annual reports. It also facilitates financial data collectors' unrestricted access in space and time, which reduces the company's costs (Berisha *et al.*, 2022).

Companies have sought to build information systems and use modern technology represented in cloud computing to help companies manage and store large amounts of information, which in turn depends on the principles represented in the preparation of international financial reports (Bennaoum & Lahouel, 2022). As such, there is a need to develop international financial reports in line with cloud computing applications and risks in order to ensure that the quality and credibility of financial reports and the information they include are maintained (Association for Financial Markets in Europe, 2019).

II. Literature Review

Cloud computing is any technology that performs all the operations facing economic units over the Internet, in which software and information are stored on millions of servers. The information is dealt with quickly by enabling users to request the software they work on and the information that is processed in time, that is, it is a new technology through which computer units in their various forms are dispensed with in favor of the data center and are dealt with and store data, programs and applications (Huawei Technologies Co., Ltd. 2022).

Cloud computing works on transferring processors and computer storage spaces to what is known as the cloud, which includes services that are carried out through hardware and software connected to a network of servers that carry data in a virtual cloud that ensures uninterrupted communication with a number of computers, smart phones, and others (Chai & Bigelow, 2022). Also, the end user does not require knowledge of the location and physical configuration of the system providing the services, and the shared resources can then be accessed through computers and other electronic devices over the Internet (Ebenezer *et al.*, 2014).

Moreover, cloud computing has brought about a major change in the economics and sustainability of Information and Computer Technology (ICT). It is considered one of the most innovative technological models for the development and usage of infrastructure resources in the world. This model provides a shift from purchasing infrastructure and its technological applications as a product to a service that is well-provided, and the consumer no longer needs to search for large financing to purchase infrastructure equipment and related applications (Quinto & Emmanuel, 2022). This model also supports enterprises in general and small and medium enterprises (SMEs) in particular in obtaining powerful and efficient resources that they could not afford, and it provides an opportunity for large organizations to obtain processors, storage capacities, and huge communication servers at any time without restrictions on resources or having to increase the size of its equipment and facilities (Yangyang, 2019). The use of cloud computing resources and components represents one of the potential incentives to achieve many financial and administrative advantages.

Additionally, the use of advanced computing technology leads to a continuous change in the technology of collecting, processing, and distributing financial and non-financial data and information. It also leads to fundamental changes to the traditional tools for dealing with accounting information, which contributes to raising the efficiency and capacity of the accounting system in processing data and obtaining accounting information that is characterized by speed, objectivity, and reliability (Power, 2018). In this context, the accounting profession was not far from keeping pace with technological developments, as practitioners should understand these changes that require reorganizing the work of the economic units they serve and realize the need to analyze and evaluate the impact and changes that affect the accounting system in relation to the requirements of the international standards, governing frameworks and regulations, updated technologies and programs, and safe operational processes (Pepe, 2011).

On the other hand, the decision-maker must have the ability to understand the content of the information and use it optimally in making appropriate decisions, where the greatest burden falls on the working cadre in the application of the systems provided for that information. Therefore, the cadre must have scientific and practical experience and qualifications. Also, the cadre must include experienced accountants who specialize in analyzing accounting information from the huge amount of information that is transmitted within the electronic system through their ability to deal with different technologies and systems, retrieve, and analyze information in addition to other skills (Azar *et al.*, 2019).

The use of cloud computing leads to a continuous change in the technology of collecting, processing, and disseminating financial and non-financial data and information, and to the occurrence of fundamental changes

to the traditional tools for dealing with data and accounting information, which contributes to raising the efficiency and operating capacity of the accounting system regarding processing data and obtaining accounting information that is characterized by speed, convenience, and reliability. However, the accounting profession was not far from keeping pace with technological developments, as those in charge and practitioners should understand these changes that require reorganizing the work of the economic units they serve. Accountants must also realize the need to analyze and evaluate the effects and changes that impacted the accounting system in terms of requirements, accounting standards, frameworks, governing rules, new technologies and programs, and safe operational processes (Power, 2018).

Financial reporting quality refers to the reports that are more complete, neutral, and error-free and offer additional suitable analytical or positive information about firms' primary economic position, event, and performance (Ogunsola, 2021). Supplying high-quality financial reporting information is important because it will positively influence capital providers and other stakeholders in making investment, credit, and similar resource allocation decisions enhancing overall market efficiency (Shuraki *et al.*, 2021).

The information in the companies' financial statements is an important factor for evaluating the efficiency and effectiveness of companies. The application of cloud computing in the field of accounting is the preparation of accounts and reports, including the information they contain through the use of an accounting program hosted by a third party on the Internet, which is a great informational and technological leap (Osadchy, *et al.*, 2018).

Using cloud accounting leads to significant growth in productivity since it assists accountants to provide high-quality financial reports to their clients, and helps accountants decide on faster and more accurate choices. There is a need to adopt cloud accounting technology as it will intensify the quality of financial reporting and financial performance since cloud accounting has a positive impact on the quality of financial reporting (Ogunsola, 2021).

III. Conceptual Framework

Cloud computing is defined as "technical servers connected together and managed centrally through the Internet or local information networks called the cloud, in order for information technology programs to transform from products into various computer services available to all customers and service seekers in order to shorten the time and exploit the capabilities of the service provider to make available large storage spaces for users without the need to purchase expensive devices with large storage capacity (Brandas *et al.*, 2015).

Cloud accounting is the innovative modern technology provided by the cloud with the aim of addressing the delivery of accounting information to its users in a timely manner. This leads to improving the quality and reliability of the information in financial reports and to providing a competitive advantage for the enterprise (Peters & Agwor, 2022). Cloud accounting can be considered a contemporary revolution in the world of using the web as related to accounting work, through the use of another service on the Internet in accordance with financial reporting standards (Xu, 2020).

The emergence of cloud accounting in companies or economic units enabled companies to harmonize with modern technological developments and keep abreast of these developments, as it prompted them to be open to change and avoid stagnation in light of traditional accounting methods. This enhances their performance and leads them to achieve success. The ownership of cloud accounting technology by organizations is the model of modern information technology deployment based on virtualization, where resources, applications, and data that are related to the infrastructure via the Internet as a service distributed by the provider of this service (IBM, 2021).

Based on the above, cloud accounting is an accounting system that users can access through the Internet. It has the same functions as desktop accounting; however, the whole process is done and saved within remote servers.

3.1 Services of Cloud Computing

Using cloud services is closely related to common cloud offerings, which include (Azure, 2022):

- i. Software as a Service (SaaS): It is a software delivery model where applications are hosted by a service provider and made accessible to clients over the Internet.
- ii. Infrastructure as a Service (IaaS): It is the delivery of operating systems and related facilities using the Internet without the need for downloading or installing. This generates and arranges applications without the need to invest in the basic infrastructure.
- iii. Platform as a Service (PaaS): It comprises outsourcing the tools used to sustain operations, which include vast storage, hardware, numerous servers, and grid components, all of which are readily reachable over the Internet.

3.2 Advantages and Disadvantages of Cloud Accounting

Every innovative type of technology has benefits and downsides. Cloud accounting is not different as it also has some advantages and disadvantages as follows (Parlinska & Petrovska, 2017):

3.2.1 Advantages:

- i. Because it is hosted online, Cloud Accounting offers easy access to the clients' accounts. SaaS providers such as Xero, also provide software for tabs and smart phones. This makes it easy to access the clients' reports from anywhere anytime. Clients can also update data very easily, much like updating their statuses over social media applications (WhatsApp, Instagram, Facebook, etc.). Consequently, accessing and managing a business's information became a lot easier using cloud accounting.
- ii. This software can be accessed from any data center which provides various security levels to achieve better protection of the company's data. Hence, one can depend on the security level provided by the cloud. In Software as a Service (SaaS), the supplier provides maintenance, as well as security, so the user's data is protected.
- iii. The cloud provider guarantees automatic backups of the users' data. Hence, the user does not worry about saving data while using cloud accounting.
- iv. Cloud providers require monthly subscriptions from clients to use cloud-based accounting software. Thus, no capital cost is required to install the software.
- v. Obtaining powerful and expensive equipment is not needed to use cloud computing, as all processing, applications, and account setting occur within the cloud.

3.2.2 Disadvantages:

Despite the above-mentioned benefits and advantages of using the cloud, there are many risks associated with its use. Some of these are:

3.2.2.1 Physical Risks (Abdalla & Varol, 2019):

- i. Having a weak or slow Internet connection is a problem. The Internet disruption and the lack of other choices can lead to the users' failure to perform operations in applications that need an Internet connection. Slow networks, which are especially common in developing countries, hinder the availability of the information that users need to make timely decisions.
- ii. There are deficiencies in cloud applications, which are limited to some procedures, settlements, and accounting transactions.
- iii. There is a lack of a technological infrastructure that helps companies determine the accounting services required from the cloud provider.
- iv. Users of the cloud services have no way to monitor the risks that come with using the cloud, such as the risk of misrepresentation of the information contained in the financial reports, or impersonation of the beneficiary.

3.2.2.2 Legislation and security risks (Krishnan & Chen, 2014; Yangfan, 2020):

- i. The clients' information is exposed to invasion or even the providing company may itself sell the clients' information or take advantage of it one way or another since the terms of the process between the user and the cloud computing service provider are not governed by laws or accounting standards.
- ii. The extent to which the user and the cloud providers should comply with the contractual procedure between the client and the cloud service provider is not controlled by accounting laws or standards.
- iii. There is a lack of accounting laws or standards to protect the intellectual property of the clients' data and information.
- iv. There is a risk that the users' accounting files come to be under the control of the service providers because they have access to the users' passwords.

3.2.2.3 Human risks related to qualifications (Sibuea, et al. 2021):

- i. Using the cloud involves considerable technical skill in dealing with the software on the users' part. In addition, they should have accounting experience so they can record and prepare financial reports.
- ii. There is a risk that users incorrectly enter accounting data and financial statement numbers into the cloud.
- iii. There is a risk that users do not know the operating instructions for using cloud computing applications.
- iv. There is a risk that no programs exist to train users in analyzing accounting data or in preparing essential financial reports when using cloud computing.

The company that uses and provides services of cloud accounting systems should build the necessary infrastructure and models by predicting the past and future information events of cloud accounting technology as well as the method of predicting risks in order to run the system without failure as well as storing the digital financial data of the facilities in a secure environment.

3.3 Relation with Financial Reporting

Applying cloud accounting has a certain impact on the dimensions of financial reports including relevance, faithful representation, understandability, comparability, verifiability, and timeliness (Herath & Albaraqi, 2017).

3.3.1 Relevance: It is referred to as the ability to make a difference in the decisions that users make in their capacity as providers of capital (IFRS, 2015). Companies applying cloud accounting benefit from many advantages, including giving freedom to the user of financial reports to know useful information. It also provides users with the ability to make more accurate predictions due to the speed of data processing through cloud accounting about future events, as well as to know the relative importance of each item in the financial reports. This effect, if it is misleading, will influence the users' decisions on the basis of the mentioned accounting information using cloud accounting (Barth *et al.*, 2008).

3.3.2 Faithful Representation: This is the concept of reflecting and representing the true economic situation of the reported financial information. This concept is valuable in explaining how well liabilities and economic resources, including transactions and events, are fully represented in financial reports. Furthermore, this characteristic has neutrality – as a sub-concept– which relates to objectivity and balance. This means that accounting information is processed in the cloud without any interference from anyone; thus, there is no bias in selecting the financial information to be displayed. It is also free from errors since this information is processed and presented to the user (Beest *et al.*, 2009). Cloud accounting has a positive impact on the quality of financial reports. It needs computer technicians to help solve the issues which usually accompany cloud accounting in order to help users finish their reports flawlessly (Ogunsola, 2021).

3.3.3 Understandability: The first improving quality, understandability, will increase when information is categorized, distinguished, and presented clearly and briefly. Understandability is indicated when the quality of the information allows users to understand its meaning (IFRS, 2015). Preparing financial reports using cloud accounting is not different from preparing financial reports using desktop accounting; however, it is presented more precisely because of the continuous updates for cloud accounting software.

3.3.4 Comparability: Comparability does not only refer to the constancy of using accounting procedures by one firm, but also to its comparability among different firms (IFRS, 2015). It is highly essential to assess the annual reports' comparability of different companies, accounting policies, structure of annual reports, and explanation of transactions and other events. Applying cloud accounting allows unrestricted access to financial information, which impacts comparability. Most companies are now completely aware of the importance of applying accounting standards as they guarantee the accuracy of the reports, their understandability, and their comparability (Inggarsono *et al.*, 2018).

3.3.5 Verifiability: It is the quality of information that assures to users that the information at hand faithfully represents the economic situation it claims to represent. Verifiability means that diverse users of the financial reporting information conclude a general consensus, although not necessarily in full arrangement (IFRS, 2015). Relying on cloud accounting, companies can avoid negative impacts that usually occur as a result of the accountants using different methods in analyzing the outputs of the systems used in the companies to check verifiability. This helps unify accounting practices for users of this service.

3.3.6 Timeliness: Timeliness illustrates that information must be available to decision-makers before losing its powerful and good influence. Timeliness is assessed using the period between the year-end and the date of issuing the auditor's report – the period of days the auditor took to sign the report after the financial year-end. Applying cloud accounting can increase efficiency since it works in real-time and is easily understood and used in a way that enables accountants to present financial reports in time (Al-Zoubi, 2017).

IV. Research Problem and Hypotheses

A lot of companies are now shifting to using cloud accounting instead of desktop accounting. With this shift, there are many issues to be tackled. Thus, the researchers have the following questions in mind:

1. Does applying cloud accounting affect the quality and credibility of accounting information?

From the above question, the following sub-questions arise:

1.1 Does applying cloud accounting affect the relevance of financial information?

1.2 Does applying cloud accounting affect the faithful representation of financial information?

1.3 Does applying cloud accounting affect the understandability of financial information?

1.4 Does applying cloud accounting affect the comparability of financial statements?

1.5 Does applying cloud accounting affect the timeliness of information availability?

1.6 Does applying cloud accounting affect the verifiability of accounting items and the inputs of accounting measurement models?

2. Do the risks of applying cloud accounting lead to the need to develop the International Financial Reporting Standards?

From the above question, the following sub-questions arise:

2.1 Do the risks of legislation and security gaps lead to the need to develop the International Financial Reporting Standards?

2.2 Do material risks lead to the need to develop the International Financial Reporting Standards?

2.3 Do human risks lead to the need to develop the International Financial Reporting Standards?

Based on the above questions and the literature review, the researchers have the following hypotheses to prove or disprove:

H₁ Applying cloud accounting affects the quality and credibility of financial information.

H_{1.1} Applying cloud accounting affects the relevance of financial information.

H_{1.2} Applying cloud accounting affects the faithful representation of financial information.

H_{1.3} Applying cloud accounting affects the understandability of financial information.

H_{1.4} Applying cloud accounting affects the comparability of financial statements.

H_{1.5} Applying cloud accounting affects the timeliness of information availability.

H_{1.6} Applying cloud accounting affects the verifiability of accounting items and the inputs of accounting measurement models.

H₂ The risks of applying cloud accounting lead to the need to develop the International Financial Reporting Standards.

H_{2.1} The risks of legislation and security gaps lead to the need to develop the International Financial Reporting Standards.

H_{2.2} Material risks lead to the need to develop the International Financial Reporting Standards.

H_{2.3} Human risks lead to the need to develop the International Financial Reporting Standards.

V. Procedures and Methods

5.1 Population and Sample Selection

The population of this study consists of all Certified Public Accountants (CPAs) in Mount Lebanon and Beirut Governorates who are 1866 CPAs. The researchers chose a random sample of 400 CPAs and distributed the questionnaire among them, 366 of whom responded, and their responses were valid for testing and analysis. The demographic data of the sample is shown in Table 1:

Table no 1: The participants' distribution according to personal data

Variable	Category	Frequency	Percent
Education	Bachelor	223	60.9
	Master	124	33.9
	Ph.D.	19	5.2
Major	Accounting	283	77.3
	Business Administration	66	18
	Banking and Finance	11	3.1
	Economics	6	1.6
Years of experience	0 – 5 years	11	3.1
	5 – 10 years	159	43.4
	10-15 years	103	28.1
	15 years and above	93	25.4
9>{	CPA	117	31.9
	CMA	9	2.5
	CIA	3	0.8
	Other	237	64.8
Total		366	100.0

It is quite clear from Table 1 that 64.3% of the participants have Bachelor's degrees, 35.6% have Masters' and Ph.D degrees, most of whom (80.6%) have majored in Accounting which is the appropriate major to understand the items of the questionnaire and have a professional and reliable response for the subject-matter of the study at hand. It is also evident that 97.5% of the sample has more than 5 years of experience in practicing the profession.

5.2 Instrumentation

Based on the previous studies, scientific discussions with university colleagues in accounting, and interviews made with members of the Lebanese Association of Certified Public Accountants (LACPA) in addition to the researchers' personal experience, the researchers constructed a five-point Likert-style questionnaire with 38 items categorized in two domains. The scale ranges as in the following table:

Table no 2: Correct Tool of the Study

Answer	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Degree	5	4	3	2	1

VI. Data Analysis and Discussion

The researchers calculated the correlation coefficient among the items of the questionnaire, and the results came as in Table 3:

Table no 3: Correlation coefficient between each item and total score of the questionnaire (N=50)

First Hypothesis						Second Hypothesis		
N.	Corr. Coefficient	Sig	N.	Corr. Coefficient	Sig	N.	Corr. Coefficient	Sig
1	.636**	0.000	14	.749**	0.000	1	.773**	0.000
2	.701**	0.000	15	.809**	0.000	2	.803**	0.000
3	.473**	0.000	16	.815**	0.000	3	.731**	0.000
4	.738**	0.000	17	.511**	0.000	4	.771**	0.000
5	.544**	0.000	18	.648**	0.000	5	.768**	0.000
6	.610**	0.000	19	.594**	0.000	6	.916**	0.000
7	.805**	0.000	20	.740**	0.000	7	.931**	0.000
8	.808**	0.000	21	.841**	0.000	8	.592**	0.000
9	.694**	0.000	22	.818**	0.000	9	.823**	0.000
10	.791**	0.000	23	.714**	0.000	10	.724**	0.000
11	.674**	0.000	24	.870**	0.000	11	.825**	0.000
12	.808**	0.000	25	.712**	0.000	12	.964**	0.000
13	.676**	0.000	26	.781**	0.000			

Note: **Prob. <0.01.

From Table 3, it is evident that all items of the questionnaire are statistically significant at the level 0.01, where the correlation coefficient for the items ranged from 0.473 to 0.931, which means there exists internal consistency among the items of the study tool.

Findings of the current study also show Cronbach's Alpha and Guttman Split-Half Coefficient as in **Table 4:**

Table no 4: Cronbach's Alpha and Guttman Split-Half Coefficient. (N=50)

Domain	Cronbach's Alpha		Split-Half	
	No. of Items	Cronbach's Alpha	Correlation Between Forms	Guttman Split-Half Coefficient
First Domain	26	.947	.941	.953
Second Domain	12	.923	.812	.879
All items	38	.968	.976	.959

It is evident from table 4 that Cronbach's Alpha for the items of the questionnaire as a whole is 0.968 and the Guttman Split-Half Coefficient is 0.959, which means that there is reliability in all items of the questionnaire.

6.1 Testing the Hypotheses

6.1.1 The first hypothesis: Applying cloud accounting affects the quality and credibility of financial information.

6.1.1.1 The first sub-hypothesis

For the first sub-hypothesis, which states "Applying cloud accounting affects the relevance of financial information" the researchers calculated the mean, standard deviation, and relative weight for each item. In addition, the One-Sample T-Test was used to determine the relevance of the responses to the value (3) which reflects neutrality. The results are shown in table (5):

Table no 5: Result Analysis of the first sub-hypothesis.

	Items related to "relevance"	Mean	Std. D	Relative weight	T-test	Sig.
1.	Applying cloud accounting contributes to presenting financial information that enables users to assess past, present, and future events.	4.33	0.59	86.7%	26.28	0.00**
2.	Applying cloud accounting contributes to determining the materiality for items in the financial statements accurately.	4.53	0.72	90.5%	37.77	0.00**
3.	Applying cloud accounting contributes to building expectations and forecasts for financial statements to be of good quality.	4.25	0.70	85.0%	31.47	0.00**

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4.	Applying cloud accounting helps in preparing financial reports which are characterized by indicators that measure the predictive value.	4.10	0.83	82.0%	23.46	0.00**
5.	Applying cloud accounting helps in providing feedback on the results of the company's activity and business.	4.33	0.79	86.6%	29.84	0.00**
All items		4.37	0.305	87.4%	52.943	0.00**

Note: **Prob. <0.00. T-tabular at degrees of freedom 313 is 1.96

The mean of the sample's responses to all items related to "relevance" was 4.37 and the relative weight of 87.4%. Also, the value of the calculated 'T' test is 52.943, which is greater than the value of the tabulated 'T' at the significance of 0.05. This means that there is an increase of statistical significance to the neutral level in the average responses of the members of the sample; consequently, the first sub-hypothesis of the study which states "Applying cloud accounting affects the relevance of financial information" is accepted.

6.1.2 The second sub-hypothesis

For the second sub-hypothesis, which states "Applying cloud accounting affects the faithful representation of financial information" the results are shown in table (6):

Table no 6: Result Analysis of the second sub-hypothesis.

	Items related to "faithful representation"	Mean	Std. D	Relative weight	T-test	Sig.
6.	Applying cloud accounting helps in providing financial information that is objective and complete.	4.41	0.76	88.2%	32.73	0.00**
7.	Applying cloud accounting helps in providing financial information that is accurate and error-free.	4.15	0.75	83.0%	27.33	0.00**
8.	Applying cloud accounting helps in providing financial information that is neutral and reliable.	4.15	0.69	83.0%	29.62	0.00**
9.	Applying cloud accounting helps in providing financial information that is accurate for the phenomena to be assessed.	3.94	0.76	78.9%	21.97	0.00**
All items		4.47	0.379	89.4%	45.55	0.00**

The mean of the sample's responses to all items related to "faithful representation" was 4.47 and a relative weight of 89.4%. Also, the value of the calculated 'T' test is 45.55, which is greater than the value of the tabulated 'T' at the significance 0.05. This means that there is an increase of statistical significance to the neutral level in the average responses of the members of the sample; consequently, the second sub-hypothesis of the study which states "Applying cloud accounting affects the faithful representation of financial information" is accepted.

6.1.3 The third sub-hypothesis

For the third sub-hypothesis, which states "Applying cloud accounting affects the understandability of accounting information" the results are shown in table (7):

Table no 7: Result Analysis of the third sub-hypothesis.

	Items related to "understandability"	Mean	Std. D	Relative weight	T-test	Sig.
10.	Applying cloud accounting contributes to classifying and presenting financial information clearly and concisely.	4.00	0.79	80.0%	22.38	0.00**
11.	Applying cloud accounting is affected by the one who prepares the financial statements, who must be aware of the ability of the users to benefit from the data.	4.20	0.68	84.0%	31.31	0.00**
12.	Applying cloud accounting helps in the ability to understand where financial reports are more theoretical than objective	4.11	0.67	82.2%	29.54	0.00**
13.	Applying cloud accounting helps when its users are able to understand the data of financial reports and absorb their implications.	3.95	0.78	79.0%	21.63	0.00**
All items		3.96	0.553	79.2%	31.23	0.00**

The mean of the sample's responses to all items related to "understandability" was 3.96 and a relative weight of 79.2%. Also, the value of the calculated 'T' test is 31.23, which is greater than the value of the tabulated 'T' at the significance 0.05. This means that there is an increase of statistical significance to the neutral level in the average responses of the members of the sample; consequently, the third sub-hypothesis of the study which states "Applying cloud accounting affects the understandability of financial information" is accepted.

6.1.4 The fourth sub-hypothesis

For the fourth sub-hypothesis, which states "Applying cloud accounting affects the comparability of financial statements" the results are shown in table (8):

Table no 8: Result Analysis of the fourth sub-hypothesis.

	Items related to “comparability”	Mean	Std. D	Relative weight	T-test	Sig.
14.	Applying cloud accounting helps in presenting financial reports that are characterized by consistency in applying accounting concepts and methods.	4.20	0.68	84.0%	31.31	0.00**
15.	Applying cloud accounting helps in presenting financial reports that are characterized by the application of International Standards for Financial Reporting, as this helps to achieve the feature of comparison.	3.95	0.78	79.0%	21.63	0.00**
16.	Applying cloud accounting helps in that the information in the financial reports can be compared with the information from other time periods.	3.95	0.78	79.0%	21.63	0.00**
17.	Applying cloud accounting helps in presenting financial reports that depend on rational or reasonable accounting methods on the basis of which the financial statements and the information they contain are prepared.	4.00	0.79	80.0%	22.38	0.00**
All items		4.10	0.505	81.9%	39.02	0.00**

The mean of the sample’s responses to all items related to “comparability” was 4.10 and a relative weight of 81.9%. Also, the value of the calculated ‘T’ test is 39.02, which is greater than the value of the tabulated ‘T’ at the significance 0.05. This means that there is an increase of statistical significance to the neutral level in the average responses of the members of the sample; consequently, the fourth sub-hypothesis of the study which states “Applying cloud accounting affects the comparability of financial statements” is accepted.

6.1.5 The fifth sub-hypothesis

For the fifth sub-hypothesis, which states “Applying cloud accounting affects the timeliness of information availability” the results are shown in table (9):

Table no 9: Result Analysis of the fifth sub-hypothesis.

	Items related to “timeliness”	Mean	Std. D	Relative weight	T-test	Sig.
18.	Applying cloud accounting helps in supplying accounting information that continues to be useful for a long period after the date of the report because of its need for appropriate decision-making by users.	4.42	0.538	88.4%	31.02	0.00**
19.	Applying cloud accounting helps in supplying accounting information that is available before or while making a decision for its users.	4.45	0.54	89.0%	31.45	0.00**
20.	Applying cloud accounting helps in supplying financial reports that are affected by the previous and old accounting information, as it becomes less useful than modern information for its users.	4.27	0.71	85.4%	20.97	0.00**
21.	Applying cloud accounting helps influence the decision of investors and decision-makers when issuing accounting information in a timely manner.	4.43	0.59	88.7%	28.50	0.00**
All items		4.33	0.59	86.7%	26.28	0.00**

The mean of the sample’s responses to all items related to “timeliness” was 4.33 and a relative weight of 86.7%. Also, the value of the calculated ‘T’ test is 26.28, which is greater than the value of the tabulated ‘T’ at the significance 0.05. This means that there is an increase of statistical significance to the neutral level in the average responses of the members of the sample; consequently, the fifth sub-hypothesis of the study which states “Applying cloud accounting affects the timeliness of information availability” is accepted.

6.1.6 The sixth sub-hypothesis

For the sixth sub-hypothesis, which states “Applying cloud accounting affects the verifiability of accounting items and the inputs of accounting measurement models” the results are shown in table (10):

Table no 10: Result Analysis of the sixth sub-hypothesis.

	Items related to “verifiability”	Mean	Std. D	Relative weight	T-test	Sig.
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22.	Applying cloud accounting helps in obtaining similar results by a group of independent and knowledgeable accountants if they are proven by similar methods.	4.56	0.61	91.2%	29.69	0.00**
23.	Applying cloud accounting helps in the use of similar accounting policies for financial reports preparation, as this enables the verification of the information contained in the financial reports.	4.39	0.57	87.8%	28.55	0.00**
24.	Applying cloud accounting helps when a group of independent accountants use similar measurement methods for the economic events included in the report and reach a consensus.	4.43	0.579	88.7%	29.11	0.00**
25.	Applying cloud accounting helps a group of different users have access to the same accounting information.	4.41	0.61	88.1%	26.99	0.00**
26.	Applying cloud accounting helps in verifying the inputs of accounting measurement models and recomputing the outputs using the same computing methods.	4.52	0.58	90.4%	30.70	0.00**
All items		4.46	0.581	89.1%	29.45	0.00**

The mean of the sample’s responses to all items related to “verifiability” was 4.46 and a relative weight of 89.1%. Also, the value of the calculated ‘T’ test is 29.45, which is greater than the value of the tabulated ‘T’ at the significance 0.05. This means that there is an increase of statistical significance to the neutral level in the average responses of the members of the sample; consequently, the sixth sub-hypothesis of the study which states “Applying cloud accounting affects the verifiability of accounting items and the inputs of accounting measurement models” is accepted.

6.1.2 The second hypothesis: The risks of applying cloud accounting lead to the need to develop personal International Financial Reporting Standards.

6.1.2.1 The first sub-hypothesis

For the first sub-hypothesis, which states “The risks of legislation and security gaps lead to the need to develop International Financial Reporting Standards” the researchers calculated the mean, standard deviation, and relative weight for each item. In addition, the One-Sample T-Test was used to determine the relevance of the responses to the value (3) which reflects neutrality. The results are shown in table (11):

Table no 11: Result Analysis of the first sub-hypothesis.

	Risks of legislation and security gaps	Mean	Std. D	Relative weight	T-test	Sig.
1.	The application of cloud accounting requires the development of standards with restrictions and access to accounting information and restricting access to the password to those authorized to do so.	3.99	0.80	79.9%	22.14	0.00**
2.	The application of cloud accounting requires the development of standards that ensure the protection of data and information privacy from the possibility of invasion or sale.	4.47	0.70	89.5%	37.21	0.00**
3.	The application of cloud accounting requires the development of standards to protect the user’s intellectual property of data and accounting information.	4.11	0.53	82.2%	37.34	0.00**
4.	There is a lack of accounting laws or standards to protect the privacy of data and accounting information and to ensure that no outsiders can access it.	4.42	0.71	88.5%	35.43	0.00**
All items		4.22	0.454	84.4%	48.26	0.00**

Note: **Prob. <0.00. T-tabular at degrees of freedom 313 is 1.96

The mean of the sample’s responses to all items related to “risks of procedural and legislation gaps” was 4.22 and a relative weight of 84.4%. Also, the value of the calculated ‘T’ test is 48.26, which is greater than the value of the tabulated ‘T’ at the significance 0.05. This means that there is an increase of statistical significance to the neutral level in the average responses of the members of the sample; consequently, the first sub-hypothesis of the study which states “The risks of legislation and security gaps lead to the need to develop International Financial Reporting Standards” is accepted.

6.1.2.2 The second sub-hypothesis

For the second sub-hypothesis, which states “Material risks lead to the need to develop International Financial Reporting Standards” the results are shown in table (12):

Table no 12: Result Analysis of the second sub-hypothesis.

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	Material risks	Mean	Std. D	Relative weight	T-test	Sig.
5.	The lack of standards and control systems for the user of cloud services increases risks and affects reporting and information quality.	4.16	0.68	83.2%	30.28	0.00**
6.	The common danger found in developing countries related to the slowness of the Internet leads to an increase in the risks of delayed accounting operations and delays in the arrival of information to users.	3.87	0.66	77.4%	23.23	0.00**
7.	The lack of an emergency plan to face potential problems in cloud applications such as partial or total damage of data is considered a material risk that affects preparing financial reports and the quality of the information.	4.59	0.76	91.7%	36.84	0.00**
8.	The lack of rules to link the accounting information to their users is the most crucial material risk that affects preparing financial reports and the quality of financial information.	4.08	0.73	81.5%	26.02	0.00**
All items		4.38	0.54	87.7%	29.85	0.00**

The mean of the sample’s responses to all items related to “material risks” was 4.38 and a relative weight of 87.7%. Also, the value of the calculated ‘T’ test is 29.85, which is greater than the value of the tabulated ‘T’ at the significance 0.05. This means that there is an increase of statistical significance to the neutral level in the average responses of the members of the sample; consequently, the second sub-hypothesis of the study which states “Material risks lead to the need to develop International Financial Reporting Standards” is accepted.

6.1.2.3 The third sub-hypothesis

For the third sub-hypothesis, which states “Human risks lead to the need to develop the International Financial Reporting Standards” the results are shown in table (13):

Table no 13: Result Analysis of the third sub-hypothesis.

	Human risks	Mean	Std. D	Relative weight	T-test	Sig.
9.	There is a lack of accounting standards relative to the minimum level of required skills for both users and providers of cloud services which leads to increase human risks which affects preparing financial reports and quality of information.	4.10	0.50	81.9%	39.02	0.00**
10.	Inaccurate entry of data and accounting information to the cloud leads to increase human risks and negatively impacts the quality of financial information.	4.17	0.77	83.3%	27.24	0.00**
11.	Insufficient knowledge of technology related to cloud accounting on the users’ or providers’ part leads to inaccuracy in the outputs of information and reports.	4.10	0.76	81.9%	25.64	0.00**
12.	Applying cloud accounting requires the development of standards which obliges both users and providers of cloud accounting to undergo technical and accounting training.	4.30	0.69	86.0%	33.81	0.00**
All items		4.22	0.64	84.5%	34.33	0.00**

The mean of the sample’s responses to all items related to “human risks” was 4.22 and a relative weight of 84.5%. Also, the value of the calculated ‘T’ test is 34.33, which is greater than the value of the tabulated ‘T’ at the significance 0.05. This means that there is an increase of statistical significance to the neutral level in the average responses of the members of the sample; consequently, the second sub-hypothesis of the study which states “Human risks lead to the need to develop the International Financial Reporting Standards” is accepted.

VII. Conclusions and Recommendations

The current study agrees with the IBM report (2021) that pointed out cloud accounting has enabled companies to harmonize with modern technological developments and keep abreast of these developments, as it prompted them to be open to change and avoid stagnation in light of traditional accounting methods. The study additionally agrees with Krishnan & Chen (2014) in that intellectual property rights should be protected, as there are no guarantees that these rights are not invaded or that the financial information is not accessed or taken advantage of one way or another. The study also agrees with Sibuea, *et al.* (2021) in that the company which uses and provides services of cloud accounting systems should build the necessary infrastructure and models by predicting the past and future information events of cloud accounting technology as well as the method of predicting risks in order to run the system without failure. In addition, the results show agreement with IFRS (2015) when it reports that cloud accounting provides users with the ability to make more accurate predictions. Furthermore, understandability will increase when information is categorized, distinguished, and presented clearly

and briefly as it is when using cloud accounting services. Azar *et al.*, (2019) assert the same concept when their study assures that the ability to understand the content of the information and use it optimally in making appropriate decisions is guaranteed when using cloud accounting. Additionally, as found in Ogunsola's study (2021), cloud accounting can provide financial information that is accurate and error-free. Similarly, the study agrees with Inggarsono *et al.* (2018) when their study finds that providers of cloud accounting services are aware of the importance of applying accounting standards as they guarantee the accuracy of the reports, their understandability, and their comparability. Al-Zoubi(2017) points out the same result that the current study has reached, which is mainly that information must be available to decision-makers before losing its powerful and good influence. As to the reduction of the company's costs and facilitation of financial data collectors' unrestricted access in space and time, the current study agrees with Berisha *et al.*, (2022) who reached the same result in their study.

As the current study concluded, applying cloud accounting services leads to providing high-quality and credible accounting information, which would be reflected on making good investment decisions, which agrees with what Al-Zoubi's study(2017) has noted. However, there is a risk of applying cloud accounting that leads users to be hesitant about using it. One of the most urgent risks is that relative to selling accounting information on the side of the cloud service provider's part. Another one is the deletion of files that contain classified accounting information or are being infiltrated by unauthorized personnel or individuals, which agrees with the findings of Javiad's study (2013). A third risk is relative to having a qualified working team on the service provider's part and on the user's part as well, the same as Avram's study (2013) has concluded.

Based on the results the study has reached, there is a lack of accounting standards relative to the minimum level of required skills for both users and providers of the cloud services which leads to increase human risks which affects preparing financial reports and quality of information. Thus, the researchers recommend that applying cloud accounting requires the development of standards which obliges both users and providers of cloud accounting to undergo technical and accounting training.

The study also concluded that the application of cloud accounting requires the development of standards to ensure the protection of data and information privacy in addition to the user's intellectual property of data and accounting information from the possibility of invasion or sale.

As this emerging idea of cloud accounting is still young and so many are still unaware or have little knowledge about it, the researchers suggest that further research should be conducted about it in order for the greater majority of interested parties to engage in it. In addition, the current study has been conducted in Lebanon; hence, it is worthwhile to conduct similar studies in more developed countries. Further studies can include the impact of applying cloud accounting on accounting systems, the impact of cloud accounting on business organizations and cost reduction, and the impact of applying cloud accounting on employees' performance.

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