

The impact of cloud computing on accounting nature

Doaa Fathy Ahmed

School of Economics and Management, Nile university (Cairo),
6th of October, Egypt.

Prof. Mohamed Hamed Temraz

Professor of Financial Accounting
Faculty of Commerce & Business
Administration & Helwan University

Prof. Hamdy Kadous

Professor of Financial Accounting
Faculty of Commerce & Business
Administration & Helwan University

Abstract:

Technology has become increasingly important over the years, and it now appears in almost every aspect of daily personal and business routines. Technology encompasses the practices, skills, techniques, methods, and procedures that humans employ in achieving a specific goal in a less complicated manner. The greatest impact of recent technological advancements on accounting is the ability of businesses to develop and use computerized systems to track and record financial transactions. Information technology (IT) networks and computer systems have reduced the amount of time it takes accountants to prepare and present financial data to management. This system enables businesses to create individual reports quickly and easily for management decision making. increased functionality, enhanced accuracy, quicker processing, and improved external reporting are some of the other benefits of computerized accounting

systems. Thus, this study will extensively discuss one of the major technological developments that affect business enterprises and its relationship to the accounting nature. Given that, it will start by giving a brief understanding about cloud computing concepts, followed by elaborating and shaping the services and types of cloud computing, completing by analyzing the impact of cloud computing on the accounting nature.

Keywords: cloud-computing, cloud-accounting, technology, accounting-nature.

I. Introduction

Since the accounting world has changed dramatically in recent years, and this change is accelerating, Cloud Accounting became one of the emerging digital technologies that is getting more attraction of major accounting firms and professional companies that are increasingly IT-focused. Customer expectations are changing as cloud accounting evolves, and accountants are rethinking how they conduct business to meet the new, often heightened, demands. People are ready to be free of the paperwork in their businesses and focus on what they are most passionate about. Technology is assisting them in achieving a better work/life balance. With cloud service, businesses can have financial information up to the hour, even minute, that is fully accessible and manageable by their accountant.

There is a misunderstanding between cloud accounting and cloud computing, the term "cloud" refers to the Internet metaphorically. The cloud computing is a platform that allows data and software to be accessed online at any time, from any device with an internet connection. Via cloud computing services, customers can get on-demand Internet access to ICT (Information and communication technology) resources such as computing power, data storage capacity, software services, and operating system functionality. These resources are run on servers, storage devices, and networking hardware housed in data centers managed by the cloud computing provider. The service provider is in charge of the hardware, software, and data stored in these facilities, as well as their security, maintenance, and backup. In another study, Mell and Grance (2011) identified some benefits of cloud computing to the accounting discipline, such as improved data storage, improved financial reporting quality, advanced decision-making processes, and efficient use of organisational resources.

This article will discuss the advantages of cloud accounting, as well as the continuing efforts by researchers that focused on pointing out these advantages. This article would start at the first part by addressing a concise overview of cloud accounting services, also cloud accounting types and characteristics. This part also will provide a brief understanding about the cloud accounting challenges and threats in business

environment. Part II of this article gives a brief background about the impact cloud accounting on current accounting nature and financial reporting.

1. An overview of cloud accounting

Ping and Xuefeng pioneered the concept of "cloud accounting" (2011). They define cloud accounting as the use of cloud computing in the internet to create a virtual accounting information system, i.e., cloud computing plus accounting equals cloud accounting. Mishra and Mohanty (2017) define cloud accounting as "online accounting that functions like application software on users' computers but provides services over the Internet and allows users to access remote servers." They also believe that cloud-based software poses a risk to those who are not interested in implementing it and are not prepared to reap the benefits of cloud software.

Ebenezer et al. (2014) investigated whether cloud computing could be used in an accounting system. They conducted quantitative and qualitative research and discovered that 64 percent of accountants have extensive knowledge of cloud computing, implying that it can be used in accounting processes for cost-effectiveness and speed, but 91 percent believe it is not free of security issues regarding data confidentiality. Gupta and Gaur (2018) recommended focusing on cloud computing security and reliability factors while not overlooking human factors when implementing cloud technology in

accounting systems in their impact study of cloud computing on accounting. They recommended that accountants have in-depth knowledge of cloud technology and not rely solely on cloud service providers for the successful implementation of cloud technology.

Ionescu and Prichici (2013), discovered several advantages to adopting the cloud concept. They gain improved internal infrastructure and communication if they implement the concept, where they emphasise mobility when their assignments can be completed regardless of location, and both data and software are available online. Furthermore, they contend that the cost savings are significant when no IT-specialists are required, software on the market is comparatively cheap, and IT-investments are reduced. In other words, they emphasize the main advantages of cloud accounting as staff productivity, cost effectiveness, and staff relocation to focus on business development. Furthermore, they contend that the cost savings are significant when no IT-specialists are required, software on the market is comparatively cheap, and IT-investments are reduced. In other words, they emphasize the main advantages of cloud accounting as staff productivity, cost effectiveness, and staff relocation to focus on business development.

Dimitru and Matei (2014) conducted a case study based on cloud accounting literature. They examined these technologies

from a business and accounting standpoint and discovered that the cloud concept's popularity is growing by the day; interestingly, more firms are embracing cloud-based software to reap the benefits and developments it provides. It has provided all business participants and potential users with access to up-to-date financial data via the Internet.

According to Ali and Thakur (2017), the importance of cloud-based accounting should be focused on chartered accountants because they are associated with internal and external consulting services related to an organization's accounting system. They discovered that the majority of chartered accountants do not use cloud accounting due to the security of losing data and the additional cost of migrating from traditional accounting to cloud accounting. Yoo and Kim (2018) identified cloud computation factors such as task characteristics, technology characteristics, organisational factors, and environmental factors, as well as their impacts and interdependence.

Cloud computing also offers numerous benefits by combining data centres, resources, and servers via the internet. These services are based on a pay-per-use model. The services are available anywhere in the world and at a significantly lower cost, which improves employee collaboration. The software in the cloud will be automatically updated, making the cloud easily manageable. The service consumer will also have access to the

documents stored in the cloud. It also has some constraints. Because cloud data is so adaptable, there are some security and privacy concerns to address, as well as vulnerabilities to attacks. When there is a high volume of users, the cloud may experience downtime.

2. Cloud computing services:

Cloud computing services differ depending on the type of ICT resources used. IaaS (Infrastructure as a Service) is sole provision of computing, storage, and/or networking resources. Platform as a Service (PaaS) is provided for customers who are creating new software applications and includes an operating system and development tools in addition to infrastructure. Finally, Software as a Service (SaaS) gives customers access to software applications via the Internet, where the software runs on the cloud services provider's operating system and computing infrastructure.

ii. Infrastructure as a service (IaaS)

Infrastructure as a service (IaaS) is a type of cloud computing service that provides on-demand compute, storage, and networking resources on a pay-as-you-go basis. Migrating your organization's infrastructure to an IaaS solution allows you to reduce on-premises data center maintenance, save money on hardware, and gain real-time business insights. IaaS solutions

enable you to scale your IT resources up and down in response to demand. They also aid in the rapid provisioning of new applications and the increased reliability of your underlying infrastructure. IaaS eliminates the need to retain and upgrade software and hardware, as well as troubleshoot equipment issues. The service provider ensures that your infrastructure is efficient and meets service-level agreements with the appropriate agreement in place (SLAs). (Kobis,2013)

ii. Platform as a service (Paas)

Is a complete cloud development and deployment environment with resources to convey everything from simple cloud-based apps to sophisticated, cloud-enabled enterprise applications. You pay a cloud service provider on a pay-as-you-go basis for the resources you require and access them via a secure Internet connection. Infrastructure servers, storage, and networking—as well as middleware, development tools, business intelligence (BI) services, database management systems, and other services—are all part of PaaS. PaaS is intended to support the entire web application lifecycle: development, testing, deployment, management, and updating. PaaS eliminates the cost and complexity of purchasing and managing software licences, the underlying application infrastructure and middleware, container orchestrators such as Kubernetes, development tools, and other resources. Users are in charge of monitoring the

applications and services they create, while the cloud service provider is in charge of everything else. (Alimbudiono, 2020)

ii. Software as a service (SaaS)

Users can connect to and use cloud-based apps via the Internet using software as a service (SaaS). Email, calendaring, and office tools are common examples of SaaS (such as Microsoft Office 365). SaaS is a complete software solution that you can purchase from a cloud service provider on a pay-as-you-go basis. You rent the use of an app for your organization, and your users access it via the Internet, typically via a web browser. The service provider's data center houses all the underlying infrastructure, middleware, app software, and app data. (Bhimani and Willcocks, 2014)

4. Cloud computing types:

Mulholland et al. (2010) distinguish three types of cloud environment or cloud deployment models: public cloud, private cloud, and hybrid cloud. Depending on the specific needs, businesses can run applications on public, private, or hybrid clouds.

i. Public cloud

A public cloud environment is possessed by an outsourced cloud provider and is available to many businesses on a pay-per-use basis via the internet. This deployment model offers services and infrastructure to business owners looking to reduce IT operational costs, but the cloud provider is in charge of resource creation and maintenance. Public clouds are suitable for small and medium-sized businesses that have a limited budget and need a quick and simple platform to utilise IT resources. (Tulsain, 2018)

ii. Private cloud

This cloud deployment model is a custom designed infrastructure owned by a single company. It provides a more controlled environment with more centralized access to IT resources within the business. This model can be hosted externally or managed internally. Even though private cloud hosting is more expensive, it can provide a better security levels and more independence in customising the storage, networking, and compute components to meet the needs of larger businesses. (Mulholland et al., 2010)

iii. Hybrid cloud

A hybrid cloud environment is a good option for businesses that want the benefits of both private and public cloud deployment models. A hybrid cloud model combines the two

models to provide a more tailor - made IT solution that meets specific business needs.

Most organizations and individuals use cloud services delivered via the public cloud deployment model because it offers numerous advantages over other approaches. It enables businesses to pay as they use the service, allowing them to monitor usage easily or forecast future expenses as they increase their use of the service (Du and Cong, 2015). The cloud service provider is responsible for the capital investment in IT equipment and its maintenance, allowing organizations to assign more resources and build qualifications around their core business (Du and Cong, 2015; Mulholland et al., 2010). Another advantage is the low cost of cloud and additional application services offered concurrently to a broader range of organizations (Bhimani and Willcocks, 2014; Mulholland et al.).

5. Cloud computing challenges:

Cloud computing has the potential to save money while also facilitating innovative web services. However, it has been discovered that the implementation of a wide range of cloud computing applications faces several challenges. Cloud services are almost always available, but some of them have scheduled timeouts. For the time being, they suspend their services for routine maintenance. Some services are only available at certain times of the

day. Moreover, Cloud users will be having limited control over the data in the cloud. Most control they have is in IaaS (Infrastructure as a Service), where they get control over the virtual machines and customize them according to their needs. Also, the availability of cloud services is entirely dependent on the internet. Even though the internet is ubiquitous throughout the world, some countries lack a proper network. The use of cloud services causes providers to ignore parts of the world that do not have internet access. People nowadays dislike using mobile data to run a heavy application. They prefer Wi-Fi, but it is not always available. (Mishra and Mohanty, 2017)

The decision to adopt cloud accounting software is not without limitations and constraints that organizations must consider. In general, cloud provider service reliability and internet reliability are major concerns for user organizations (Du and Cong, 2010). Furthermore, data security and privacy are important concerns because user organizations may have concerns about how their data is being managed or possibly misappropriated. According to Quinn et al. (2014), concerns about data security and protection are the primary reasons for not implementing cloud technology for financial accounting processes. Approximately one-third of respondents who chose not to use cloud technology cited inefficiency as a reason.

Kim (2018) stated that one barrier to cloud services is users' concern that data stored and transmitted in the cloud will not be used or disclosed in unexpected ways. This is one of the most important factors for business owners who want to take advantage of new solutions. Data transmission within a LAN (Local Area Network) has given business owners confidence that interception by unauthorized persons is minimal and is solely dependent on the level of security on its own network. When transferring data between virtual servers, we must rely on a reliable collateral public network and server unit service provider. Service providers must reassure enterprises and consumers about the complete security of their data. On the supplier-recipient line, there must be an appropriate high level of confidence in risk management skills, backed up using cutting-edge cybersecurity solutions. (Kim,2018)

User organizations should also consider service performance effectiveness, data ownership, and regulatory compliance issues. Many organizations will choose to build in-house capacity rather than use a cloud solution to maintain complete control over data communication and information sharing with regulatory authorities. Authorities may have easy access to and directly exchange client information and data with the cloud provider, depending on the jurisdiction, which can often be unfavorable for cloud service users. The cloud provider also faces a going concern risk. If the cloud service organization

goes out of business or significantly disrupts its operations, it will cause significant disruption or even threaten user organizations' business continuity. Businesses may also be stuck with a specific vendor as a cloud provider, unable to easily change the service provider without causing substantial costs or changing entire systems (Quinn et al., 2014).

Thus, most cloud providers ensure data security and privacy by utilizing security mechanisms. However, data leakage does occur in some cases. Previously, there was a data leakage issue in iCloud, where most of the celebrities' data was leaked to the public. It appears that keeping data online in the cloud grants data access without the user's knowledge. The main issue preventing businesses from using the cloud and its services is security. However, we can overcome data privacy and security concerns by integrating blockchain technology to facilitate cloud computing growth. It improves data security, service availability, and cloud data management. Section II of this article introduces you to cloud computing concepts. Section III describes blockchain technology, including its characteristics, blockchain types, blockchain layers, architecture, operation, and other leading applications. The coming section explains the blockchain technology and its relationship with Bitcoin.

ii. The impact of cloud computing on accounting nature

In the age of globalization, all aspects of work must continue to innovate to develop meaningful and efficient working conditions (Aini et al., 2019). At a time when accounting is a real new business supported by cloud computing technology, this software acts like an accounting application installed on computer users, but it is done on a server that offers internet services and users can access it via a web browser (Davis, 1989). As a result, the accountant or business owner can access their financial records from any location via the internet. In terms of technological developments, companies and thus accounting departments are generally influenced by business digitalization, the enormous potential created by the internet, the implications of big data, and the growing importance assigned to data mining. Accounting is being transformed by technology. The primary motivator for this shift is cloud accounting (Rahardja et al., 2018). Cloud accounting enables businesses to access applications via the internet from offsite providers rather than company-owned and maintained hardware and software. The process of delivering financial information is now timelier and more efficient, as well as providing access to more current and detailed business information.

Thus, an increasing number of businesses of varying sizes rely on cloud platform software. Accountants and other employees save time by backing up their data using cloud solutions, and they can access data and information from anywhere as long as they have internet access. Many cloud solution providers are increasingly providing mobile apps to help managers with monitoring, control, and data analytics. In comparison to traditional customized ERP solutions that may differ significantly across various subsidiaries, cloud ERP is more of a prepackaged solution for multinational companies and contribute to improved integration of the accounting information system on a consortium level. (Cong et al., 2018)

According to Khanom (2017), cloud accounting provides accountants with cost savings, real-time information, access to data anywhere and at any time, better security systems than desktop applications, and automatic data backup. The cost effectiveness and other advantages make cloud accounting solutions more appealing to small and medium-sized businesses, which typically lack the resources to invest strongly in IT infrastructure. Many small businesses worldwide are adopting cloud - based solutions for a single or multiple business processes, such as transaction accounting, financial information preparation, and financial management.

However, behind these benefits are risks that user may face, both in terms of errors from users and from the developer side, namely problems with confidential company data, down time due to network failures, network security used by users is free of hackers or viruses, and, in the end, accountants are hesitant and have little enthusiasm to accept cloud accounting. In general, cloud provider service reliability and internet reliability are major concerns for user organizations (Du and Cong, 2010). Furthermore, data security and confidentiality are important concerns because user organizations may have concerns about how their data is being managed or possibly misappropriated. According to Quinn et al. (2014), concerns about data security and protection are the primary reasons for not adopting cloud technology for financial accounting processes. Approximately one-third of respondents who chose not to use cloud technology cited inefficiency as a reason.

User organizations should also consider service performance quality, data ownership, and regulatory compliance issues. Many organizations will choose to build in-house capacity rather than use a cloud solution in order to maintain complete control over data communication and information sharing with regulatory authorities. Authorities may have easy access to and directly exchange client data and information with the cloud service provider, depending on the jurisdiction, which can often be disadvantageous for cloud service users. The cloud service

provider also faces a going concern risk. If the cloud service organization goes out of business or significantly disrupts its operations, it will cause significant disruption or even threaten user organizations' business continuity. User o should also consider service performance quality, data ownership, and regulatory compliance issues. Businesses may also be stuck with a specific vendor as a cloud service provider, unable to easily change the service provider without incurring significant costs or changing entire systems (Quinn et al., 2014).

iii. Conclusion

After close reading of the current research studies, in the light of the previously discussed cloud accounting developments and their impacts over the accounting nature and profession, it got to be evident that, even after all the proposed efforts by conceptual framework setters in improving the principles and concepts identified with these recent technological developments through cloud accounting, yet every one of these trials fails to give a genuine resolution for the nonstop complication accompanied with them to cope with the current accounting nature and profession. Thus, we can assert that IT developments could significantly influence the future of financial reporting and the evolution of generally accepted accounting principles specifically on the recognition, measurement, disclosure of assets and fair value accounting. On the other side, we argued that many companies have become aware that they need IT

advancements, but they do not understand truly what they need for the comprehension about its scope and come up with a solution.

Due to ample of evolutions in the last decade in the corporate world, the issues of singleness and lag in traditional accounting have gotten worse with the quick development of a new generation of information technology. Also, managers and investors became seeking for a better economic framework which better mirror the value and profitability of their company. Accounting standards which are issued till today are not sufficient and unlikely in facing the challenges arising from efficient capital markets and owners. Notwithstanding, the researcher cannot doubt the positive effects of recent accounting developments in resolving some of the issues associated with accounting processes; however, these developments cannot be regarded as a comprehensive solution to these issues. The issues of singleness and lag in traditional accounting have gotten worse with the quick growth of a new generation of information technology. To strengthen the accounting conceptual framework's robustness and broaden its relevance in a rapidly changing technological environment, it became urgently necessary to rebuild the conceptual framework associated with traditional accounting. The process of gathering, storing, analyzing, and using data is optimized by the next generation of information technology.

2. References:

- Ace Cloud Hosting Editor. 2020. How Big Data Is Impacting Accounting Firms in 2020. available at: <https://www.acecloudhosting.com/blog/how-big-data-impacting-accounting-firms>.
- Aini, Q., Rahardja, U., Arribathi, A. H., & Santoso, N. P. L. (2019). Penerapan Cloud Accounting dalam Menunjang Efektivitas Laporan Neraca pada Perguruan Tinggi. CESS (Journal of Computer Engineering, System and Science), 4(1), 60-64.
- Andreas, J. (2014). The Basic of Information Security. 2nd ed., ISBN: 978-0-12-800744-0. Blower, J. L., & Christensen, C. M. (1995). Disruptive technologies: catching the wave. <https://hbr.org/1995/01/disruptive-technologies-catching-the-wave>
- Chuttur, M. Y. (2009). Overview of the technology acceptance model: Origins, developments and future directions. Working Papers on Information Systems, 9(37), 9-37.
- Christauskas, C., & Miseviciene, R. (2012). Cloud-computing based accounting for small to medium sized business. Engineering Economics, 23(1), 14-21.
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. MIS quarterly, 13(3), 319-340.
- Dimitriu, O., & Matei, M. (2015). Cloud accounting: a new business model in a challenging context. Procedia Economics and Finance, 32, 665-671.
- Khanom, T. (2017). Cloud Accounting: A Theoretical Overview. IOSR Journal of Business and Management, 19(6), 31-38. Kure, E. (2017). Rhenald Khasali: Inovasi Kunci untuk Bertahan dan Berkembang.

-
- <https://www.beritasatu.com/heru-andriyanto/ekonomi/415350/rhenald-kasali-inovasi-kunci-untuk-bertahan-dan-berkembang>.
- Leoni, G., (2019), “Accounting and Auditing at the Time of Blockchain Technology: A Research Agenda”, *Australian Accounting Review* 29, 331–342.
 - Mohanty, A., & Mishra, A. M. (2017). Benefits and issues of cloud computing in accounting. *International Journal of Trend in Scientific Research and Development*, 1(6), 283-288.
 - Mulholland, A., Pyke, J., Fingar, P., (2010), *Enterprise Cloud Computing: A Strategy Guide for Business and Technology Leaders*. Meghan-Kiffer Press, USA.
 - Nakamoto, S., (2008). Bitcoin: A Peer-to-Peer Electronic Cash System. unpublished manuscript.
 - Păcurari, D., & Nechita, E. (2013). Some considerations on cloud accounting. *Studies and Scientific Researches. Economics Edition*, 18, 193-198.
 - Quinn, M., Strauss, E., Kristandl, G., (2014), “The effects of cloud technology on management accounting and business decision-making”, *Financial Management* 10, 1–12. Schmitz, J.,