

## AN ANALYSIS OF THE USE OF ACCOUNTING SYSTEM ON CLOUD: A CASE STUDY IN ABBAZ ADVISORY.

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### ABSTRACT

The impact of the Fourth Industrial Revolution and the rapid advances in science and technology have created the concept of cloud technology, which effectively supports the developments of Internet of Things (IoT), automation, and robotics. One of the greatest technological changes affecting the accountancy profession is cloud accounting, which helps to reduce infrastructure support costs, improve the accessibility of accounting, save time, and provide larger storage compared to traditional accounting. These changes warrant a new level of preparedness, investment, and adaptation for accounting firms. The aim of this research is to understand the cloud technology service offered by audit firms. In achieving the research objectives, this study conducted interviews to obtain insights into the issues affecting the adoption and use of cloud accounting technology. Consequently, the overview of cloud technology offered by audit firms will enable the study to support the change caused by technological developments and guide the accounting profession in implementing the cloud technology effectively.

**Keywords:** Cloud Accounting, Auditing, IR4.0, Malaysia

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### INTRODUCTION

The Fourth Industrial Revolution (IR 4.0) is an extension of technological innovations and is characterised by artificial intelligence, robotics, nanotechnologies, biotechnologies, blockchain, and cloud technology. Technology has a transformative effect, and IR 4.0 is driving an era of unprecedented technological changes. The revolution leads to new breakthroughs in science, commerce, engineering and most significantly, in the governance of society and the social impacts arising from these pervasive technologies (Wright et al., 2015). In Malaysia, the government launched the National IR 4.0 Policy on July 1, 2021, with the aim of ensuring the

country is able to ride the wave of IR 4.0 (Economic Planning Unit,2021). This policy will facilitate the embrace of new technologies, such as Artificial Intelligence (AI), Big Data and blockchain and in line with the Malaysia Digital Economy Blueprint (MDEB), a roadmap towards becoming a high-income nation by accelerating digitalisation in all aspects of the economy.

IR 4.0 is expected to bring a paradigm shift to the accountancy field, with technology enabling the completion of core tasks. Among the substantial benefits of technological developments is the removal of slow and manual processes, allowing accountants to spend more time on adding value to the business (Skoulding, 2018). Accountants will now have to prepare to face a consistent inflow of real time financial data instead of periodically checking with a bookkeeper. Auditing in particular will become much easier. Accountants can catch financial fraud faster, minimising the damage, and can also notice financial trends and offer more real time advice.

One of the greatest technological changes affecting the accountancy profession is cloud technology, which has reduced the infrastructure support costs for organisations. Cloud technology is especially useful for mobile working; it allows accountants to access data anytime and anywhere, perform real time reporting, and push more information directly to the format they prefer (Alshamaila et al., 2013). Thus, this new technology allows a greater analysis of business drivers by using insights and actionable analytics to achieve a competitive advantage. Hence, accountants are moving away from bookkeeping and stewardship functions to become strategic business partners.

Regarding the auditing process, as data becomes increasingly digital, auditors will be able to collect more digital data for advance analytics. This data will be available 24/7 in the cloud, and auditors across borders will be able to interact far more seamlessly. Therefore, the cloud may aid auditors in extracting data that may be harder to locate within Enterprise Resource Planning (ERP) and other physical systems. Mobile access to data may also become easier through the cloud, enabling auditors to work more effectively remotely (Sahandi et al., 2013). The centric nature of the cloud structure that uses access controls like facial recognition technology and various encryption techniques improves data security compared to physical archives that might be vulnerable to access by unauthorised parties.

Most accountants agree that change needs to happen, but the delivery of change is still in its infancy. Some clients also still need persuading that technology is the way forward. Thus, this study focuses on understanding the benefit of cloud technology employed by audit firms and their clients. In achieving the research objectives, this study has conducted interviews with the directors of an audit firm.

This paper is divided into four sections. The first section highlights the concept of cloud accounting. The second section discusses the role of cloud computing in accounting and the challenges in adopting cloud computing in accounting. Then, section three discusses the study's methodology and section four discusses the results and conclusion of the study.

## **LITERATURE REVIEW**

### **The Concept of Cloud Accounting**

In this technological era, the emergence of cloud computing has shaped the business environment to an entirely new level. This phenomenon has been seen not only in information technology (IT) but also in the accounting field. The term 'cloud' is a metaphor for the Internet, as all information is kept on the Internet rather than on a hard drive (Knorr, 2011). The Romanian Court of Auditors defines cloud computing as "a style of computing in which the

use of IT capabilities is provided as a service and allows users to access distributed services based on new technologies via the Internet without the knowledge, expertise or control of technological infrastructure to support these services”. Cloud itself does not relate to any new invention in technology but is just an alteration from older technology to serve new types of structured business environment (Filippi & Mccarthy, 2012). Traditionally, all information and documentations are kept either in the printed form or as soft copies stored in a hard drive, exposing them to the risk damage and theft. On the other hand, by using cloud, users can access all information anytime and anywhere as long as there is an Internet connection. The concept of cloud involves using a browser or software that can be connected to the Internet to store files on the cloud. It includes all the functionalities and services provided by the accounting software installed on the client’s computer, but it runs on the servers of the Common Service Provider (CSP).

Cloud offers a service rather than a product to its users due to the nature of cloud itself, which is similar to the offerings of a telecommunications company (Wafra & Yasmineh, 2014). According to Raihan (2019) and Howell (2010), the services offered by cloud can be categorised into three types, namely, IaaS (infrastructure as a service), PaaS (platform as a service), and SaaS (software as a service).

In IaaS, a company is provided with physical and virtual processing, storage, networks, and other computing resources that allow it to run the software and/or operating systems. While the user does not manage or control the underlying cloud infrastructure, the company does have control over the operating systems, storage, and deployed applications, in addition to possible control over things like hosting the firewalls (IBM Cloud Education, 2021).

In PaaS, a company deploys its own applications to the cloud. These applications are created using operating systems, programming languages, libraries, services, and tools supported by the cloud solution provider. The company does not manage or control the underlying cloud infrastructure, but the underlying storage and computer resources often scale automatically to match the demand for the developer applications (IBM Cloud Education, 2021). Examples of PaaS include operating systems, database solutions, web servers, and application development tools.

In SaaS, a company accesses the cloud solution provider’s applications running on the cloud. The applications are accessible from various devices (e.g., mobile phone, laptop, tablet) through access points such as a web browser or an application interface (IBM Cloud Education, 2021). The user does not manage or control the underlying cloud infrastructure, including any networks, servers, operating systems, storage, or individual application capabilities, with the possible exception of limited user-specific or customised application configuration settings.

Cloud accounting, also known as “online accounting”, “web-based accounting”, “real-time accounting” or “cloud financials”, is the new term for applications and software substituting the traditional stand-alone accounting software (Dimitriu & Matei, 2015). Ping and Xuefeng (2011) referred to the cloud accounting as the use of computing on the Internet to build a virtual accounting information system. The difference that cloud computing brings to accounting is in how to access the software, either through a web browser or by using an Internet connection. One of the significant features of the cloud accounting software is it allows users to have real time access to financial data regardless of their location (Brandas, 2015). Cloud and traditional accounting software have the same functionalities. The difference between these two types of software is that in the former, the application runs on the cloud service, whereas the traditional accounting software is a stand-alone system that is usually installed on one or several personal computers (Atherton, 2019). Cloud accounting solutions are transforming the way that accounting applications are used, and they are modernising the entire business environment.

As stated by Watfa and Yasmineh (2014), cloud provides a service rather than a product. Dimitriu and Matei (2015) concur with the idea that cloud offers a service and adds that the implementation of cloud does not require additional investments for infrastructure or any software that can be used on several computers only. Cloud technology improves business agility because the company can access computing resources on demand, depending on their specific needs at a specific time. Hence, the implementation of cloud accounting allows companies to empower all stakeholders in a collaborative way with the same financial data (Ren, 2015). One of the concerns of the accounting and financial sector is storage. According to the study by Ren (2015) on data auditing of public storage, cloud storage is one of the main reasons businesses shift to the cloud system as the system allows them to move their local documentations and data to the cloud. The high capacity of cloud storage solves users' problem as traditional systems have a limited storage capacity that requires additional investments to expand (Liu, 2016). The author added that cloud storage providers such as Google Drive, Dropbox, Amazon S3, and Microsoft OneDrive are popular among the general users. These findings show that cloud is reshaping the manner in which people and companies collaborate, store or share information and procure computing resources for both their personal and professional use.

### **The Role of Cloud Computing in Accounting**

Technological developments have provided great solutions for developing effective business models, especially when there is an economic downturn. The accounting field has also seized this precious opportunity to grow their field to the next level. Cloud computing has become crucial for accounting and financial sectors due to the cost advantage and flexibility that will help the sectors improve their cost and performance productivity. Silva (2012) has listed down the flexibilities that businesses will gain from the cloud, including:

1. On-demand service – can be used when needed. This feature provides some degree of freedom to the customers.
2. Network access – utilises the Internet and can be accessed via laptops, workstations, and smart phones.
3. Pooling of resources – resources are pooled to provide customers customisable variable costs based on business size.
4. Scalability – scale up or down based on customers' current needs.

Matarneh et. Al., (2019) stated that companies can now expand their business through a wide range of sites and applications by sharing the resources provided by an accounting service provider without experiencing any difficulties when performing different tasks. Business is becoming more flexible with the sharing of resources, allowing users to access the cloud easily to find information and resources.

Hence, as long the users have an Internet connection, they can access the information on their company's financial condition. The study by Brad et. Al., (2013) on traditional and cloud accounting found that the implementation of cloud accounting allows employees, suppliers, and clients to access and update information from any location without having to be present at the company's office. Bogdan (2013) in his paper about cloud information security stated that users want to access the information on cloud from any place and at any time without facing any obstructions from the cloud provider. The advantage of using cloud is that users and businesses can access and update financial information in real time regardless of their physical locations. Besides that, users also have the ability to control the access and resources in the cloud according to their specification to the service provider (Pacurari & Nechita, 2013).

The study by Khanom (2017) elaborated on the importance of cloud computing for the accounting sector. One of the justifications provided for utilising cloud is the low cost involved in investing in the software and the hosting server. Besides, with the traditional computing, changes in the accounting rules or tax regulations may force the firm to buy or set up new software for the program if the old software is not able to support the new changes. However, when using cloud, the firm only needs to pay the monthly subscriptions and the update for any changes is already included in the monthly subscriptions. Zhang (2014) supports the notion that cloud accounting has revolutionised the accounting profession at a minimal cost that is incurred for the monthly subscription, unlike the sophisticated traditional accounting software that requires companies to spend more money, time, and manpower to maintain the operations of the software.

The emergence of accounting software has improved the accounting practice tremendously. Considering the large volumes of information and documentation, the accounting and financial sectors need a platform or service to conveniently store all information. Liu et al., (2016) stated that the cloud storage service can provide vast data storage for users that can resolve the constraint in their local storage. Safe and secure storage is crucial for the accounting field due to the nature of their business that deals with voluminous client data in addition to their own business data. Moreover, the easy access via the Internet provided by cloud allows accountants, business owners, and partners to share their financial information regardless of their location and create a paperless business environment. Traditionally, they need to print the documents or bring a hard drive to present their financial data to others, but since the emergence of cloud, they only need to have an Internet connection to open the application to view the data. With cloud, the risk of low data storage is minimal and the company can recover data from the cloud storage when an unexpected event occurs (Pacurari & Nechita, 2013).

One of the job responsibilities of an accountant is to forecast market and business conditions, and better forecasts can help the company anticipate market trends better. The implementation of cloud computing in the accounting field can boost competitiveness and profitability by enabling accounting professionals to produce more accurate and detailed forecasts (Goh, 2017). This is made possible by the cloud computing technology through the provision of comprehensive infrastructure for the profession. Another potential contribution of cloud computing to accounting is in risk assessment. Matarneh (2019) stated that professionals like accountants can benefit from using the cloud technology as it provides a systematic approach to risk assessment. There are two risk probabilities that the profession needs to test, which are the effectiveness and the efficiency of the technology for their operations.

### **Challenges in Adopting Cloud Computing in Accounting**

The development of cloud technology in accounting has gained the attention of numerous scholars and industry players due to its ability to improve the sector's performance. Despite the emergence of new trends such as cloud computing that facilitate technological developments and the numerous benefits that the technologies can potentially provide, one of the challenges most organisations face is how to manage and access all the data (Hisham, 2012). The study by Morakanyane (2014) on the emerging trends of cloud computing for small and medium enterprises (SMEs) in Botswana found that one of the challenges that SMEs experienced is data management. Some businesses need to invest a large sum of money to manage and maintain their data in the cloud servers, and some of them find it too complicated to manage the data by themselves. Both researchers suggested that data management is one of the challenges that companies need to consider when using the cloud system due to the vast

amount of data and documents that need to be saved on the cloud. Besides, if there are problems with the cloud, the companies cannot remedy the problem or control the cloud as it is owned by the service provider.

Kinkela (2012) has also highlighted that if the program fails to process, the client may lack access or ability to remedy the problem. Instead, the service provider as the cloud owner is the party that has access to the cloud if there are problems. Even though there are numerous advantages in using the cloud service, there are also weaknesses such as the third party's access to sensitive data requires a review of the third-party data security policies and assurance of responsibility in the event of security breach (Kinkela, 2012). Thus, the client has less control over the operations, strategy, disaster recovery, and future direction of their outsourced IT systems (Watfa & Yasmineh, 2014). Hill and Wright (2013) emphasised the importance of communication between the client and the service provider for better transparency of the contract during the service tenure. Even though the client is dependent on the service provider only for the service that they agreed upon, the service provider has higher control and access than the client to information and data. Hence, infrastructure, software, personnel, procedures, and data need to be evaluated before any cloud-based applications are used in the accounting process (DeFelice, 2010).

Technological disadvantages arise from incompatible systems, perhaps the firm's own or an external party, for instance the firm's partner or client (Cetinoglu, 2019; Yau-Yeung et al., 2020). For example, the cloud accounting software may not be linked to the firm's bank account, perhaps because the bank does not allow third-party connection (Aman & Mohamed, 2017). Another drawback is poor connectivity, which tends to be more prevalent in countries with poor internet infrastructure (Al-Nsour et al., 2021; Ma et al., 2021; Ou & Zhang, 2021; Sastararuji et al., 2021). In such a case, the firm will not be able to maintain a stable connection with the cloud accounting server. While the data may not be lost, as they are automatically saved and backed up, this issue will disrupt the activities of the firm.

One of the reasons business and accounting sectors move towards cloud computing is the security advantages. Previously, there were threats from theft or damage because data were kept in the printed form and in hard drives. Now, all data can be stored in the cloud with the security provided by the service provider. However, there are also concerns about the security of data stored in the cloud. In the research by Zhang (2014) on the challenges and benefits of cloud computing to accounting, the author proposed that the client should consider several factors before adopting cloud computing. Among the factors are whether the space provided by the accounting supplier is safe; whether the transmission lines are secure; whether the supplier can ensure customer data is stored in the transmission process and cannot be stolen or attacked by hackers and viruses; whether hackers or competitors will take advantage of the professional virus and spyware software, illegally intercept and tamper data during transmission or enter into the financial accounting software database by bypassing checkpoints; whether cloud accounting services can ensure the ruggedness of network when applied to regional or international groups; and whether the services can cater to increases in data volumes. Considering these factors, it is plausible that the security threats are more serious than in traditional accounting. Zhang and Gu (2013) found that many companies and businesses took a wait-and-see stance with regard to the security measures that the cloud could achieve for the safety of accounting information. Clients may be adversely affected if the cloud is attacked or damaged, and the consequences may be catastrophic to the businesses. Hence, both businesses and cloud providers should prepare meticulously to create a safe cloud environment as a pillar of the development of the accounting sector.

Another challenge that clouds accounting may encounter is a lack of standards. According to Watfa and Yasmineh (2014), every cloud service provider has its own proprietary standards, and switching providers can be complicated due to a lack of specific or common

standards for how applications communicate and control data. Similarly, Howell (2010) stated that it is not easy to change cloud vendors since there are no real standards to assist the cloud vendors on switching clients. The author added that switching vendors is different from switching mobile telcos where the client needs to pay an additional fee if they want to transfer data (such as contacts, phone numbers, and addresses) and update their billing information. How can data be accessed if the provider disconnects the server connection to their client? This issue was raised by Mohanty and Mishra (2017) in their study on the benefits and issues of cloud computing for accounting. Many new vendors have entered the market with a promise to provide a low-cost cloud server but most of them cannot last long in the business due to various reasons. When they vanish from the market, their clients are disconnected from the data hosted on their servers.

Finally, there is still a lack of awareness among accountants and firms about cloud accounting software and its benefits. There appears to be concern that the financial and integrity costs of implementing cloud accounting far outweigh the benefits that will be enjoyed by the firm (Ahn et al., 2020; Rudansky-Kloppers & Van den Bergh, 2019).

## **METHODOLOGY**

This study used the qualitative research approach to gain insights into the benefits of cloud technology employed by audit firms and their clients. In gathering the views and opinions, semi-structured interviews were conducted focusing on the role of cloud accounting technology offered by an audit firm. The interviews were guided by an interview protocol and probing questions were used to pursue issues and to enhance understanding of the responses, while at the same time improving the validity and reliability of the interviews conducted (Yin, 2003). The interviews contribute to the understanding of the role of cloud accounting technology from a managerial perspective. Hence, the research findings from the study provide a comprehensive and realistic input regarding the potential of cloud technology as a mechanism for audit firm management and offer a rich understanding of the context in which the technology is supposed to be deployed.

The audit firm, ABBAZ Advisory Sdn Bhd (AASB), is one of the leading virtual chartered accountant services firms in Malaysia. The firm was established in 2012 and provides services to over 100 clients consisting of local companies. The firm has significant presence across manufacturing, services, commercial, financial, and public sector entities in Malaysia. AASB started using QuickBooks accounting software in 2012. This software is mainly for small business owners who needs flexibility in handling accounting data with an easy-to-use software package and structure that will help in their business. Previously, the software was in the form of physical desktop software that needed to be installed via a CD-ROM. Now, QuickBooks is the preferred software among its costumers due to their cloud-based software services. This customised cloud-based technology enables the firm to deploy a mobile workforce to provide enhanced service and customer support. Data can be accessed from anywhere at any time from a laptop, smartphone or tablet. The firm's employees can access their desktops, applications, and data from any location. This added mobility and connectivity has enabled staff members to be more productive and provide better service to their clients.

The directors of AASB have been interviewed for this study. They have extensive experience in all areas of accounting and finance. They also have extensive knowledge about the use of QuickBooks, a cloud accounting technology, allowing them to provide customised cloud-based technology service to their clients. The insights gained from the audit firm enrich the researcher's understanding of the cloud technology offered by audit firms. Further, the study's results may provide support for the adoption of new technology and guide the accounting profession in the implementation of cloud computing.

## **FINDINGS**

### **Cloud Accounting Improves the Audit Process**

The interviewees were asked questions regarding the practices of cloud accounting at AASB. They were also asked about whether and how cloud accounting has brought any changes to their clients' businesses. Below are some of the responses compiled from the interviews:

AASB started using QuickBooks software in 2012. This small business accounting program is used to manage income and expenses and to keep track of the financial health of their clients' business. The clients of AASB range from small to mid-sized business and the clients found this accounting software useful in managing their invoices, paying their bills, and tracking their cash flows. They also use it to generate month and year end financial reports and to prepare reports for quarterly or annual business taxes. The software is very simple to use and contains basic functions such as live feeds where the user can perform online banking and immediately the banking transactions will be uploaded. The QuickBooks software utilises the cloud to share accounting data, allowing the owner and employees to access financial information from anywhere that the Internet is available. The software is compatible with different applications and allows unlimited user access at any point of time. These features provide a high level of flexibility to small and large enterprises. Work groups and teams can access data and information from anywhere in the world and work together with no restriction caused by geographical locations, and data sharing becomes very easy with the help of the cloud accounting technology.

### **Data Security**

Based on the interviewees' responses to the first question, the researchers directed the question to the data security provided by cloud accounting by asking how well the sensitive financial data was secured by cloud accounting, how far the directors trusted the cloud accounting technology, and whether they prepared any back-ups in the event of any mistakes occurring.

Several techniques can be employed to keep financial data safe. First, QuickBooks can protect sensitive financial data with the use of a strong password for the company's data file so that no random person can assess the file without the password. AASB has implemented a policy requiring employees to change their passwords at regular intervals and employed platform tools that automatically log workers out of the system when not in use. Second, adding layers of authentication for access to hardware or other accounts can increase the security of the data. This is done by setting the system to automatically trigger a verification email or text when there is an attempt to log in. Third, stored files are encrypted with encryption keys and access to confidential data is restricted. Encryption scrambles data into a code that is indecipherable to anyone who does not have the key stored locally in the hardware. Hence, all the financial statements and supporting documents are secure.

AASB also prepares back-ups for clients' financial data. QuickBooks Online uses redundant back-up, and for added security, it provides online back-up and restore, which automatically backs up financial data every few minutes and allows users to restore previous versions.

### **Efficiency of Cloud Accounting**

The interviewees were also asked on the efficiency of cloud accounting in detecting fraud. Then, they were asked about how cloud accounting can minimise accounting manipulation. Below are some of the responses from the interviews:

The emergence of cloud accounting systems has shaped the accounting sector into a whole new form that affects all segments of the accounting industry, including in fraud detection. The nature of the fraudulent activity cannot be detected directly until any indirect symptoms or manipulations are found in the statements such as cash shortage, unauthorised electronic banking activity, and others. The directors of AASB have the authority to access a certain important part of the company. If there is any breach of the cloud system, there will be an audit trail that will leave details of the user who performed the transaction and show the date when the transaction was performed, or any changes made to the account.

All users need to log in to the account in AASB's system. Users or staff are assigned to specific tasks and jobs according to their positions. The segregation of duties will reduce the likelihood of manipulation and increase the probability of fraud protection. To prevent account manipulation, no one has the authority to access all the tasks except for the directors of AASB who monitor the workflow and results. If an amendment is required, the directors also need to log in to their cloud system account so that the cloud system can detect the person who amends the error.

## CONCLUSION

The objective of this study is to understand the cloud technology service offered by audit firms in Malaysia. The continuous changes occurring in cloud accounting allow for a greater analysis of business drivers, improvements in cost efficiency, and higher security, making cloud accounting the right choice for any business wishing to keep pace with its competitors. Cloud accounting can be highly beneficial for SMEs as it offers efficient technology and accounting services at a lower cost. Cloud accounting is expected to impact a wide range of industries and enterprises, and every business owner must sooner or later face the impact of this shift.

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## REFERENCES

- Ahn, Y., Yan, X., Nanyun, X., & Wu, F. (2020). Application of Cloud Accounting in Comprehensive Budget Management of Agricultural Enterprises under Big Data. *E3S Web of Conferences*, 214. <https://doi.org/10.1051/e3sconf/202021401026>
- Al-Nsour, E., Weshah, S., & Dahiyat, A. (2021). Cloud accounting information systems: Threats and advantages. *Accounting*, 875-882. <https://doi.org/10.5267/j.ac.2021.1.021>
- Alshamaileh, Y., Papagiannidis, S., & Li, F. (2013). Cloud Computing Adoption by SMEs in the North East of England: A multi-perspective framework. *Journal of Enterprise Information Management*, 26. <https://doi.org/10.1108/17410391311325225>
- Aman, A., & Mohamed, N. (2017). The Implementation of Cloud Accounting in Public Sector. *Asian Journal of Accounting and Governance*, 8(Special Issue), 1-6. <https://doi.org/10.17576/ajag-2017-08si-01>
- Atherton, M. (2019). The expansion of Wessex. *The Making of England*, II(2), 237-240. <https://doi.org/10.5040/9781350988897.part-003>
- Bogdan, I. (2013). Traditional Accounting Vs. Cloud Accounting. *Proceedings of the 8Th*

- International Conference Accounting and Management Information Systems (Amis 2013)*, JUNE, 106–125.  
[https://www.researchgate.net/publication/267751382\\_TRADITIONAL\\_ACCOUNTING\\_VS\\_CLOUD\\_ACCOUNTING](https://www.researchgate.net/publication/267751382_TRADITIONAL_ACCOUNTING_VS_CLOUD_ACCOUNTING)
- Brad, L., Munteanu, A., Dobre, F., & Ciobanu, R. (2013). Quantifying the Romanian Banks' Performance and the Impact of Audit Inspections Upon Them When Ifrs Reporting Standards Is Used. *Proceedings of the 8Th International Conference Accounting and Management Information Systems (Amis 2013), April 2014*, 1–1279.
- Brandas, C., Megan, O., & Didraga, O. (2015). Global Perspectives on Accounting Information Systems: Mobile and Cloud Approach. *Procedia Economics and Finance*, 20(15), 88–93. [https://doi.org/10.1016/s2212-5671\(15\)00051-9](https://doi.org/10.1016/s2212-5671(15)00051-9)
- Cetinoglu, T. (2019). A New Concept in Accounting Profession: Cloud Accounting. In Ö. Özçelik (Ed.), *Studies on Interdisciplinary Economics and Business - Volume II* (pp. 277–285). Peter Lang.
- DeFelice, A. (2010). Cloud computing - What accountants need to know. In *Journal of Accountancy* (pp. 50–55).
- Dimitriu, O., & Matei, M. (2015). Cloud Accounting: A New Business Model in a Challenging Context. *Procedia Economics and Finance*, 32(15), 665–671. [https://doi.org/10.1016/s2212-5671\(15\)01447-1](https://doi.org/10.1016/s2212-5671(15)01447-1)
- Economic Planning unit (2021). National Fourth Industrial revolution (4IR) Policy.
- Filippi, P. De, & Mccarthy, S. (2012). Cloud Computing : Centralization and Data Sovereignty. *European Journal of Law and Technology*, 3(2), 1–18.
- Hisham, H. (2012, January). Top 10 IT trends for 2012. *Malaysian Business*, Retrieved from: <http://www.tmcnet.com/usubmit/2012/01/31/6086248.htm>
- Howell, J. (2010). Moving to the Cloud. *Economist*, 395(8684). <https://doi.org/10.1057/9781137496928.0014>
- IBM Cloud Education. (2021). *IaaS versus PaaS versus SaaS*. IBM. <https://www.ibm.com/cloud/learn/iaas-paas-saas>
- Khanom, T. (2017). Cloud Accounting: A Theoretical Overview. *IOSR Journal of Business and Management*, 19(06), 31–38. <https://doi.org/10.9790/487x-1906053138>
- Kinkela, K. (2012). Practical and ethical considerations on the use of cloud computing in accounting. *Journal of Finance and Accountancy*, 1–10. <http://mobile.www.aabri.com/manuscripts/131534.pdf>
- Knorr, E., & Gruman, G. (2011). What cloud computing really means | Cloud Computing - InfoWorld. *InfoWorld*, April, 4–7. <http://www.infoworld.com/d/cloud-computing/what-cloud-computing-really-means-031>
- Liu, C. W., Hsien, W. F., Yang, C. C., & Hwang, M. S. (2016). A survey of public auditing for shared data storage with user revocation in cloud computing. *International Journal of Network Security*, 18(4), 650–666.
- Ma, D., Fisher, R., & Nesbit, T. (2021). Cloud-based client accounting and small and medium accounting practices: Adoption and impact. *International Journal of Accounting Information Systems*, 41. <https://doi.org/10.1016/j.accinf.2021.100513>
- Matarneh, A. J., Al-Tahat, S. S., Ali, O. A. M., & Jwaifel, I. (2019). The real intellectual impact of cloud accounting in achieving the competitive advantage in the jordanian industrial companies. *International Journal of Scientific and Technology Research*, 8(12), 1763–1777.
- Matei, M. (2015). Accounting in the Cloud Computing. *Tojsat*, 5(4), 1–11.
- Mohanty, M. A., & Mishra, D. A. K. (2017). Benefits and Issues of Cloud Computing in Accounting. *International Journal of Trend in Scientific Research and Development, Volume-1*(Issue-6), 283–288. <https://doi.org/10.31142/ijtsrd2507>

- Morakanyane, R. (2014). *Cloud Computing : Emerging Trends for SMEs in Botswana How ICTs Benefit Businesses in General*. November, 1–9.
- Ou, L., & Zhang, Z. (2021, 2021/04/01). Research and analysis on cloud accounting of enterprises under the background of new economy. *Journal of Physics: Conference Series*, 1852(4), 042077. <https://doi.org/10.1088/1742-6596/1852/4/042077>
- Pacurari, D., & Nechita, E. (2013). Some Considerations on Cloud Accounting. *Studies and Scientific Researches. Economics Edition*, 18, 193–198. <https://doi.org/10.29358/sceco.v0i18.227>
- Raihan Sobhan. (2019). The Concept of Cloud Accounting and its Adoption in Bangladesh. *International Journal of Trend in Scientific Research and Development*, 3(4), 1261–1267. <https://doi.org/https://doi.org/10.31142/ijtsrd24031>
- Ren, Y., Shen, J., Wang, J., Han, J., & Lee, S. (2015). Mutual verifiable provable data auditing in public cloud storage. *Journal of Internet Technology*, 16(2), 317–323. <https://doi.org/10.6138/JIT.2015.16.2.20140918>
- Rudansky-Kloppers, S., & Van den Bergh, K. (2019). The absorption and usage of cloud accounting technology by accounting firms in Cape Town for services provided to their clients. *African Journal of Science, Technology, Innovation and Development*, 11(2), 161-180. <https://doi.org/10.1080/20421338.2018.1550933>
- Sahandi, R., Alkhalil, A., & Opara-Martins, J. (2013). Cloud Computing from SMEs Perspective: A Survey-based Investigation. *Journal of Information Technology Management (JITM)*.
- Sastararuji, D., Hoonsopon, D., Pitchayadol, P., & Chiwamit, P. (2021). *Cloud Accounting Adoption in Small and Medium Enterprises: An Integrated Conceptual Framework 2021* The 2nd International Conference on Industrial Engineering and Industrial Management.
- Skoulding, L. (2018). How the fourth industrial revolution is impacting accountancy. *Accountancy Age*
- Silva, F. da, Neto, P., Garcia, V., & 2010Computing, G. (2012). Accounting Models for Cloud Computing: A Systematic Mapping Study. *Int'l Conf. Grid Computing and Applications* /, January 2018. <https://doi.org/10.6084/M9.FIGSHARE.96673>
- Watfa, M. K., & Yasmineh, D. G. (2014). Emerging It Outsourcing Trends Using the Cloud. *Journal of Information Technology Management*, □xxv(4), 45–59.
- Wright, Aaron and De Filippi, Primavera, Decentralized Blockchain Technology and the Rise of Lex Cryptographia (March 10, 2015). SSRN: <https://ssrn.com/abstract=2580664>. or <http://dx.doi.org/10.2139/ssrn.2580664>
- Yau-Yeung, D., Yigitbasioglu, O., & Green, P. (2020). Cloud accounting risks and mitigation strategies: evidence from Australia. *Accounting Forum*, 44(4), 421-446. <https://doi.org/10.1080/01559982.2020.1783047>
- Yin, R.K. (2003). *Case Study Research: Design and Methods*. Sage. Thousand Oaks, California.
- Zhang, C. (2014). Challenges and Strategies of Promoting Cloud Accounting. *Management & Engineering*, 17, 1838–5745. <https://doi.org/10.5503/J.ME.2014.17.015>
- Zhang, L., & Gu, W. (2013). The Simple Analysis of Impact on Financial Outsourcing Because of The Rising of Cloud Accounting. *Asian Journal of Business Management*, 5(1), 140–143. <https://doi.org/10.19026/ajbm.5.5822>