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Cloud Accounting: A Theoretical Overview

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ABSTRACT

The literature on the topic of the Use and Integration of Accounting Software is quite extensive, but less broad in the context of challenges faced by SMEs, and even more and narrow when we look at the limited literature on the numerous challenges faced in a geographically dispersed location such as Oman. This literature review analyzes and investigates existing research on the challenges faced by SMEs in using and integrating accounting software, to find out the most significant and relevant variables previously identified through previous studies. The aim being to apply a select few of those variables and apply them to the context of Oman to identify the specific obstacles that Omani SMEs face. The literature review involved a methodical exploration of diverse academic databases, employing specific search terms such as "SMEs," "accounting software," "challenges," "adoption," "integration," and "small business." The selection criteria focused on peer-reviewed articles and subsequently, a comprehensive evaluation of abstracts and full-texts led to the identification of about 20 pertinent studies for in-depth analysis. The research looked upon coordinate with the central and fundamental themes and dimensions of the topic, and mainly consists of secondary data including peer reviewed journals on the importance of accounting software and the benefits for SMEs in comparison with traditional or manual accounting. Moreover, the main obstacles faced by SMEs in the adoption of accounting software is reviewed as well. The review of the selected literature has revealed that although there are numerous factors or challenges that influence the proper use and integration of accounting software, the studies all found certain key variables that stand out in relation to others. Furthermore, the most significant challenges faced seem to be affected by other variables such as the level of development of the economy or country or special circumstances such as the Covid-19 Pandemic. This means that this research which is carried out in less developed economy, and in a postpandemic environment is necessary to reflect the actual circumstances of Omani SMEs implementing accounting software.

Keywords: Cloud Accounting, SMEs, Covid-19 Pandemic.

INTRODUCTION

Cloud accounting, leveraging cloud computing technology to manage accounting systems, has seen a substantial rise in adoption globally. It has caught attention recently, because of its potential to reduce cost substantially, especially investing in information technology infrastructure (Phuthong, 2022). Oman, as part of its Vision 2040 strategy, has been increasingly embracing digital transformation, which includes the integration of cloud accounting systems in both private and public sectors (Faris Nasif Al-Shubiri, 2023, pp.169–189). Accounting is an industry undergoing significant change, largely driven by technological advances. The evolution of cloud accounting is reshaping customer expectations, prompting accountants to rethink their operations to meet new, often heightened, demands. Businesses are now seeking solutions that free them from traditional paperwork, allowing them to focus on their core passions while achieving better work-life integration.

Cloud technology, one of the most significant technological trends, makes data and software accessible online anytime, anywhere, from almost any device with an internet connection. In cloud computing, users access software applications remotely through the internet via a cloud application service provider. In cloud accounting,





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data is sent into "the cloud," processed off-site, and returned to the user, eliminating the need for businesses to install and maintain software on individual computers (Dimitriu and Matei, 2015).

While there is an extensive body of literature on the adoption and integration of accounting software in SMEs, particularly in developed economies, there is a noticeable gap in research focused on the unique challenges faced by SMEs in fast developing economies like Oman. Additionally, the impact of cloud accounting within the context of Oman's Vision 2040 and the post-pandemic environment has not been thoroughly explored. Existing studies primarily address general benefits and challenges of cloud accounting but lack a comprehensive analysis tailored to the specific economic and technological context of Oman. This study seeks to fill this gap by investigating the adoption of cloud accounting among Omani SMEs, identifying specific obstacles, and assessing how these factors align with or hinder the digital transformation goals outlined in Vision 2040.

CLOUD COMPUTING AND CLOUD ACCOUNTING

Cloud Computing

The concept of cloud computing arises from the ability for companies and users to access applications globally on demand (Low, Chen and Wu, 2011). In 2010, both users and providers of management software began strategically implementing cloud accounting.

In 2011, Cheng Ping conducted a study on the application and development of cloud accounting, illustrating its growing importance. This evolution has led to a closer integration of cloud technology and accounting informatization, pushing the development and application of cloud accounting to advance accounting informatization to a new stage (Wu, 2021). Cloud computing is defined as:

"Technology that relies on the transfer of processing and storage space of a computer to the so- called cloud, and it is a server device that is accessed via the internet, and thus, the information technology turns from products to services" (Erdogmus, 2009).

(Buyya, 2009) defined cloud computing as parallel and distributed system made up of a network of interconnected computers that are dynamically provided and presented as unified computing resources, based on service level agreements (SLAs). These definitions collectively suggest cloud computing as a system that can be accessed from anywhere using inter-connected devices.

Types of Cloud Services

Cloud computing delivers highly scalable IT services over the internet to multiple clients. Depending on their needs, clients can choose from various cloud service models (Edwards, 2012). Providers like Amazon Web Services (AWS), Microsoft Azure, and Google Cloud Platform (GCP) dominate the market, offering a wide range of services including Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS). These services enable companies to offload the burden of hardware maintenance and focus on their core business objectives (Buyya, Broberg and Goscinski, 2011).

Infrastructure as a service: The concept of offering virtualized resources such as computation, storage, and communication on demand is known as Infrastructure as a Service (IaaS). It serves as the foundational layer of cloud computing systems (Dillon, Wu and Chang, 2010).

Amazon Web Services (AWS) is a prominent provider of IaaS, with its Elastic Compute Cloud (EC2) service allowing users to provision virtual machines (VMs) with customizable software stacks, like conFigureuring physical servers. Users have extensive control over their EC2 instances, including the ability to start and stop them, install software packages, attach virtual disks, and conFigure access permissions and firewall rules (AWS, 2024).





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Platform as a service: Platform as a Service (PaaS) provides a higher level of abstraction compared to Infrastructure as a Service (IaaS), making cloud computing more accessible and programmable for developers. With PaaS, developers can focus on creating and deploying applications without needing to manage the underlying infrastructure details such as servers and storage.

This approach offers a more streamlined development process, allowing developers to leverage various programming models and specialized services as building blocks for their applications (Buyya et al., 2009).

Google App Engine is an example of a PaaS offering that provides a scalable environment for developing and hosting web applications. Developers can write applications in specific programming languages like Python or Java and utilize Google's proprietary structured object data store. Additionally, Google App Engine offers various building blocks such as an in-memory object cache (memcache), mail service, instant messaging service (XMPP), image manipulation service, and integration with Google Accounts authentication service, enabling developers to build powerful and feature-rich applications without managing the underlying infrastructure complexities Software as a service: At the top layer of the cloud stack resides Software as a Service (SaaS), offering applications accessible to end-users via web portals. This model has led to a significant shift from locally installed software to online services, providing equivalent functionalities. Traditional desktop applications like word processing and spreadsheets are now available as web- based services, alleviating software maintenance burdens for users while simplifying development and testing for providers (Youseff, Butrico and Da Silva, 2008).

Salesforce.com exemplifies the SaaS model by offering business productivity applications, particularly Customer Relationship Management (CRM) tools, entirely hosted on their servers. Customers can customize and access these applications on-demand, without worrying about infrastructure maintenance or software updates (Buyya, Broberg and Goscinski, 2011). Other examples of SaaS include Google Mail, Google Docs.

Deployment Models

Three popular categories of cloud environments or deployment models are available: public cloud, private cloud, and hybrid cloud. Businesses have the flexibility to choose between public, private, or hybrid clouds based on their specific requirements when deploying applications. (Mulholland et al., 2010)

Private Clouds: The definition of a private cloud as an exclusively managed and operated cloud infrastructure for a single organization, ensuring consistent control over security, privacy, and governance, is provided by Armbrust et al., (2009). He suggested the definition for private clouds as a "internal data center of a business or organization, not made available to the general public". This deployment model, also referred to as Internal Cloud or on-premises Cloud, can be managed by the organization itself or a third party and may be located either on-premises or off-premise.

Public Clouds: Armbrust et al., (2009) suggested the definition for public cloud as a "cloud made available in as a pay-as-you-go manner to the general public". The characterization of a public cloud as a cloud infrastructure accessible to the general public or a broad industry demographic and owned by a cloud service provider is outlined by Armbrust et al. (2010). This type of cloud, alternatively termed external cloud or multitenant cloud offers services to multiple users or organizations simultaneously (Khanom, 2017).

Community based clouds: A community cloud is a specialized cloud computing infrastructure shared and overseen by several associated organizations engaged in a shared domain or vertical market (Armbrust et al., 2009). Mell and Grance proposes definition for community based clouds as "shared by several organizations and supports a specific community that has shared concerns (e.g., mission, security requirements, policy, and compliance considerations) (Mell and Grance, 2011)".

Hybrid Cloud: A hybrid cloud emerges when a private cloud integrates additional computing capacity from public clouds (Sotomayor et al., 2009). The practice of temporarily renting such capacity to manage sudden





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spikes in workload is commonly referred to as "cloud-bursting" (Jaeger et al., 2009).

Cloud Accounting: Since the late 1950s, accounting has embraced automation, leading to the emergence of sophisticated accounting software. This software streamlines processes, enabling faster and more efficient work for accountants amid large volumes of data. Over the decades, accounting software has continually evolved, becoming increasingly sophisticated, and continues to advance to meet the needs of modern business practices (Dimitriu and Matei, 2015). Accounting firms are leveraging the internet and business intelligence to create virtual accounting information systems, facilitated by the rise of cloud computing. This shift, noted by Pacurari and Nechita (2013), offers cost-effective management with advanced technological capabilities (Christauskas & Miseviciene, 2012). As emphasized by Sacer and Oluic (2013), such systems are pivotal in the knowledge economy, indicating a departure from traditional methods to internet-based accounting systems like cloud computing and blockchain (Tekbas, 2018). These advancements enhance efficiency and accessibility to up-to-date information (Gupta et al., 2017), fostering the development of digital accounting applications like extended business reports and database management systems.

There are a number of reasons, businesses are realising that Cloud Accounting is not their core business. Outsourcing IT needs to the cloud allows businesses to focus on core competencies, improving cost-effectiveness and resource allocation for growth. Information technology enhances financial transaction completion (Dandago & Rufai, 2014), improves accuracy and efficiency in processing (Moghaddam et al., 2012), enhances operational performance (Qatawneh, 2012) Additionally, it significantly improves the level of accounting operations (Zhygalova, 2013).

Benefits of Using Cloud Accounting:

1. Lower Cost: When adopting accounting software, costs encompass both initial investment and ongoing maintenance. Cloud accounting mitigates upfront expenses by eliminating the need for hardware or software licenses. This model benefits small businesses lacking extensive infrastructure, granting access to advanced technology akin to larger competitors. Furthermore, the pay-as-you-go model enables flexible payment options, tailored to individual usage, such as per-use or monthly subscriptions (Tulsian, 2012)

2. Increased Productivity: Cloud computing offers 24/7 access, enhancing business productivity by freeing users from office hours and fixed locations. Users can access applications from any device, providing real-time business visibility and cash flow management. Automated data backups ensure business continuity and high security standards protect financial data, even if a device is compromised. This model also supports scalability, allowing businesses to adjust resources as needed, fostering flexibility and growth without significant upfront investments (Dimitriu and Matei, 2015). Thus, cloud-based software improves productivity, continuity, and adaptability for businesses, particularly benefiting small enterprises (Khanom, 2017).

3. Security of Financial Information: In today's competitive economic environment, businesses are cautious about sharing financial data, as timely access to accurate information is crucial. Despite high security levels, concerns about data safety remain a significant barrier to cloud adoption. Mike Chisholm, CEO of CCH Collaborative Solutions, noted in 2013 that initial security concerns have lessened as cloud systems proved secure, often surpassing traditional office servers (Chisholm, 2013). Another concern is potential internet connectivity issues, though cloud providers ensure reliable service through clear service-level agreements. Businesses are advised to test cloud solutions for free before committing, ensuring suitability for their specific needs (Pacurari and Nechita, 2013).

4. Cloud accounting offers numerous benefits for business teams, providing data access to authorized users anytime, anywhere. It simplifies adding new users and enhances collaboration, eliminating the need for in-person document reviews. Unlike paper-based systems, cloud accounting allows immediate software issue fixes. It supports business improvement by offering flexible, cost-effective payment plans and automatic data backups, reducing human error and securing information offsite. This ensures quick data restoration in case of incidents,





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minimizing business disruptions (Khanom, 2017).

Limitations of Cloud Technology

- 1. Internet Dependency: A stable internet connection is necessary; without it, access to the accounting software is impossible (Dimitriu and Matei, 2015).
- 2. Security Risks: Despite robust security measures, data breaches remain a risk. Selecting a reputable provider with a strong security track record is essential (Al-Zoubi, 2017).
- 3. Vendor Lock-In: Switching providers can be challenging once data is migrated, so choose a long-term fit.
- 4. Limited Customization: Cloud software may lack the customization options of on-premises solutions, potentially limiting flexibility for larger businesses (SAHA et al., 2020).
- 5. Integration Challenges: Integrating with other systems can be complex and time- Consuming (Boşoteanu, 2016).
- 6. Subscription Costs: While predictable, subscription fees can accumulate over time; choose a plan that fits your budget.
- 7. Learning Curve: Transitioning to new software requires time to learn, especially for businesses moving from traditional methods (Yau-Yeung, Yigitbasioglu and Green, 2020).

To implement cloud accounting, it's crucial to address not only technical issues but also educational aspects in universities (Ionescu et al., 2012). According to Ionescu et al. (2013), risks include security concerns, poor internet connection, loss of control, and dependency. Dimitriu and Matei (2014a) highlight security and protection of customer financial information as key risks. Brandaş et al. (2015) discuss challenges such as data loss, system availability, legal concerns, intellectual property theft, patch management, and disaster recovery. Ionescu et al. (2015) stress the need for stable internet connections, organizational process reengineering, specific staff training, and resources for implementation. Dimitriu and Matei (2015) reiterate security and internet issues, noting skepticism among accountants as a significant barrier to adoption.

Cloud Accounting from Accountant's Perspective

The accounting profession remains skeptical about cloud-based software, viewing it as a threat. However, this model aims to simplify accountants' tasks and optimize workflows, not replace them.

Similar to the initial skepticism toward "horseless carriages," this shift from locally installed software to the cloud represents a paradigm change that requires understanding and adaptation (Stipić and Vičić, 2022). According to the Sage Practice of Now report, 67% of professional accountants are more comfortable using cloud accounting (Thomas-Bryant, 2020). Additionally, 56% of accountants agree that accounting technology boosts productivity (Thomas- Bryant, 2019). Cloud accounting facilitates a shift from paper-based financial statements to real- time financial dashboards. This software enhances collaboration and communication by allowing accountants and business partners to access accurate, real-time data from anywhere via the internet. It eliminates the need for transferring data or paper documents, saving time and reducing costs. Clients can pay invoices online, and partners can use current financial information for informed decision-making. Accountants have the opportunity to provide deeper business insights, transforming business performance, especially for small companies. This requires adopting new technology and working methods, reducing repetitive tasks, and leveraging expertise, with the cloud model making it affordable for all businesses (Dimitriu and Matei, 2015).

CONCLUSION

The integration of cloud accounting within Oman's Vision 2040 strategy signifies a pivotal move towards digital transformation in both private and public sectors. This transition aligns with global trends, reflecting the growing demand for flexible, cost-effective, and scalable accounting solutions. Cloud accounting, powered by cloud computing technology, offers numerous advantages, including reduced costs, enhanced productivity, improved data security, and real-time accessibility to financial information. These benefits are particularly significant for







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small and medium-sized enterprises, enabling them to compete with larger counterparts by leveraging advanced technological capabilities without substantial upfront investments.

However, the adoption of cloud accounting is not without challenges. Key limitations include dependency on stable internet connectivity, potential security risks, vendor lock-in, limited customization options, integration complexities, ongoing subscription costs, and a learning curve associated with transitioning from traditional accounting methods. Addressing these challenges requires careful selection of reputable cloud service providers, thorough training for accounting professionals, and strategic planning to ensure seamless integration with existing systems.

From the perspective of accountants, while initial skepticism exists, the shift to cloud-based software presents an opportunity to streamline operations, enhance collaboration, and provide real- time business insights. The transition from paper-based systems to digital financial dashboards enables more efficient and informed decision-making, ultimately transforming business performance.

Overall, the adoption of cloud accounting in Oman reflects a broader global shift towards digitalization in the accounting industry. As technology continues to evolve, it is imperative for businesses and accounting professionals to adapt and embrace these changes, recognizing the potential of cloud accounting to drive innovation, efficiency, and growth. Future research should focus on addressing the identified limitations and exploring new developments in cloud technology to further enhance its application in the accounting sector.

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