CLOUD ACCOUNTING: AN INNOVATIVE BUSINESS MODEL IN A COMPLEX ENVIRONMENT

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Abstract:
Advances in information technology have been noted as a key force in changing management accounting. Cloud accounting is quickly becoming one of the most popular and promising technologies. It offers variety of opportunities that help organizations to improve their business and use technology more efficiently. Although cloud accounting offers numerous benefits to business, it also has some drawbacks. Giving the relative lack of existing research in cloud accounting, this paper conducts a review of the cloud technology literature to acquire some basic knowledge of the concepts, benefits and risks associated with cloud accounting. The paper also explores some solutions to overcome the drawbacks of cloud accounting.

Keywords: *Cloud computing, cloud accounting, online accounting, business model*

1. Introduction

The world we live in is constantly evolving. In particular, the global economy demands continuous adaptation to its dynamic nature. A major driver of this need for change is the rapid and irreversible advancement of information technology. Individuals, businesses, and nations must all keep up with the fast-paced development of modern IT. Accounting, which provides essential and tailored information to various stakeholders, has also had to evolve in response to these economic shifts. Given the challenges organizations face in gathering and processing vast amounts of financial data, accounting software has become an essential tool, enabling accountants to work more efficiently and deliver timely results (Dimitriu & Matei, 2015).

The 1990s are often seen as the beginning of the "Information Revolution". This era experienced a surge in internet usage across personal, commercial, and governmental sectors. It also marked the rise of multimedia and collaborative tools, which led to the development of new infrastructures capable of supporting complex web applications and content. The latter part of the 20th century saw major advancements in data communication and a swift evolution of technology, including the emergence of social media platforms. This period fundamentally challenged traditional business models. Furthermore, the introduction of a new wave of smart mobile devices played a key role in accelerating the adoption of cloud-based services (Ernst & Young, 2011).

Cloud computing has brought accounting software into an entirely new era. In fact, its arrival is often seen as the most significant advancement since the rise of the internet. This model—particularly beneficial for businesses—enables the delivery of computing infrastructure and software as internet-based services (Dimitriu & Matei, 2013). Cloud technology is transforming how individuals and organizations communicate, collaborate, share, and store data, as well as how they access IT tools and services for both personal and professional purposes. The cloud trend is quickly gaining ground in the business world, a shift noted by numerous industry experts.

More recently, the rapid changes driven by cloud technologies have extended into the field of accounting (Ernst & Young, 2011). This marked the beginning of a new approach within the profession, commonly referred to as cloud accounting. Also known as online accounting, this system allows users to access accounting information from any location with an internet connection, without requiring installation or maintenance on local servers (Tugui & Gheorghe, 2014). According to

Dimitriu and Matei (2015), cloud accounting software functions similarly to traditional desktop accounting programs, but operates on remote servers and is accessed through web browsers. This enables accountants and business owners to manage their financial data remotely and in real time via the internet.

Cloud accounting offers a wide range of advantages. By adopting cloud-based infrastructure, companies can significantly reduce operational costs, enjoy remote access from any location, and benefit from improved performance due to greater business agility and flexibility. It also provides virtually unlimited data storage and processing power, along with automatic data backups. Businesses can share financial information with clients in real time, and the platforms are generally user-friendly. Additionally, there are no upgrade costs, as users always have access to the latest version and features of the software (Pacurari & Nechita, 2013; Dimitriu & Matei, 2014; Dimitriu & Matei, 2015). Nevertheless, cloud accounting is not without its challenges. Key concerns during migration include the security and protection of sensitive financial data, particularly against unauthorized access, data breaches, or cyber attacks (Bechtel, 2013).

This theoretical study explores cloud accounting as an innovative business model in a complex landscape. Its main objective is to highlight the various dimensions of this innovative concept. Due to its relatively recent emergence, the current body of academic literature offers limited insight into the topic. In reality, it is the business sector that has primarily driven research and interest in cloud-based accounting systems. As a result, most existing references to cloud accounting are found in technical reports, industry surveys, and market analyses rather than in scholarly publications.

2. Cloud accounting: an overview

The word "cloud" is a metaphor for the internet and represents an abstraction of the complex infrastructure it encompasses. Unlike traditional accounting systems, cloud accounting operates on a service-based model rather than as a standalone product. Instead of purchasing software licenses and maintaining on-site infrastructure, businesses subscribe to services offered by specialized providers to access their accounting data online. This model is transforming the way accounting tools are used and driving the digital modernization of the business environment. A key distinction of cloud-based accounting is its capacity to deliver real-time insights into a company's financial status (Dimitriu & Matei, 2015).

Due to the relatively recent emergence of the concept, there is no universally accepted definition of "cloud accounting" yet. Nevertheless, Tugui and Gheorghe (2014) describe it as an accounting information system accessible at any time and from any location with an internet connection, without requiring prior installation or maintenance on local servers. Similarly, Saasu (2013) explains that cloud accounting—also known as online accounting—performs the same functions as traditional accounting software installed on a local device. However, it operates on remote servers and is accessed via a web browser, with data securely stored and processed in the cloud.

Cloud accounting is best understood by examining its features and benefits. Its core advantage lies in allowing users to access accounting services without needing to install software or invest in IT infrastructure, which is the basis for its name. The application is available via an internet browser and operates entirely online. Users' financial data is securely stored and processed on the cloud service provider's servers. As such, the intellectual property rights remain with the provider, and clients are granted access to use the software, not to own it. With just an internet connection, businesses can retrieve and manage their financial information from any device and location.

A cloud-based accounting solution offers the ability to manage a wide range of complex tasks and requirements through a fully integrated online platform, significantly reducing the workload for accounting departments. According to Mihalache (2011), cloud accounting services support various functions, including:

- Automatically generating accounting entries for different transactions and operations,
- Conducting automated checks to ensure consistency between financial and managerial accounting for relevant accounts,
- Producing required periodic statements, summary financial reports, and dashboards,

- Allowing the use of multiple accounting frameworks to prepare reports in line with various financial reporting standards (e.g., IFRS, US GAAP),
- Calculating financial ratios and formulas, and generating accounting documents and reports as needed.

According to Zhang and Gu (2013), a cloud accounting provider can potentially replace the need for hiring a traditional accountant or bookkeeper, as the system is capable of executing financial operations and transactions, effectively acting as a 'virtual' finance manager. Naturally, cloud accounting services are varied and come in different deployment models, each designed to offer specific features aligned with the client's individual requirements.

Like other cloud-based services, cloud accounting solutions operate on similar principles. Based on the user's preferences and business needs, these services can deliver a range of functionalities tailored to support different levels of financial management.

3. Differences between traditional accounting and cloud accounting

Traditional accounting and cloud accounting differ significantly in terms of how the data is stored, accessed, and managed. The key differences between traditional accounting and cloud accounting according to Stander (2024) include the following:

Data storage and security: In traditional accounting systems, financial data is usually stored on local servers situated within the company's premises. This method carries several risks, including data loss from hardware malfunctions, natural disasters, or security breaches. Conversely, cloud accounting relies on remote servers managed by third-party service providers. These providers employ advanced security protocols, data encryption, and routine backups to safeguard financial information. As a result, cloud accounting reduces the vulnerabilities linked to local data storage and provides enhanced security and data protection.

Accessibility and collaboration: Traditional accounting typically necessitates being physically present in the office to view financial records, make updates, or collaborate with colleagues. In contrast, cloud accounting allows users to access their financial data at any time and from any location using internet-connected devices. This flexibility supports remote work, promotes seamless collaboration among team members in various locations, and improves real-time decision-making. Cloud accounting systems also provide features like multi-user access, document sharing, and real-time collaboration, all of which enhance teamwork and operational efficiency.

Real-time data updates and reporting: Traditional accounting methods often suffer from processing delays, manual report preparation, and restricted access to immediate financial insights. In comparison, cloud accounting systems are highly effective in delivering real-time data updates and reporting capabilities. As transactions are recorded or data is input, the information is immediately updated across the platform, providing users with the most up-to-date and accurate financial details. This real-time functionality allows businesses to produce current reports, monitor key performance indicators, and make timely, informed decisions.

Scalability and cost efficiency: A key feature that distinguishes cloud accounting from traditional accounting is its scalability. Cloud accounting enable businesses to effortlessly adjust their accounting functions to match their changing needs. As a company expands, cloud accounting platforms can handle a growing number of transactions and larger data volumes without requiring expensive hardware upgrades or additional software installations. This flexible scalability allows organizations to manage their financial operations efficiently and cost-effectively, ensuring their accounting systems grow in line with their business demands.

Integration and automation: Traditional accounting requires that businesses own their own hardware. In contrast, cloud accounting platforms are built to support integration and automation, allowing them to connect smoothly with other business applications like CRM systems, inventory management tools, and payment processors. This seamless integration removes the need for manual data entry and ensures that information flows automatically between systems, minimizing errors and saving time. Additionally, these platforms include automation features that handle routine tasks such as bank

reconciliations, invoicing, and expense tracking. By automating these processes, businesses can boost operational efficiency, reduce manual workload, and focus more on strategic financial planning.

4. Cloud service delivery models

Cloud service models are categorized according to specific business needs and goals. Currently, cloud computing encompasses three primary service models:

Software as a Service (SaaS): This model represents the most comprehensive level of cloud services, offering specialized software applications to users over the internet. Known as Software as a Service, or sometimes "on-demand software," SaaS allows consumers to access the provider's applications hosted on a cloud infrastructure without the need to install or manage the software on their own devices. This significantly reduces maintenance and technical support burdens. SaaS is typically billed on a subscription or pay-per-use basis. However, a key limitation of this model is that user data is stored on the service provider's servers (Rimal e*t al.*, 2009).

Platform as a Service (PaaS): PaaS is a cloud service model that provides a computing platform on demand, allowing users to develop, test, and deploy applications without dealing with the complexities of managing the underlying infrastructure. Positioned between Software as a Service (SaaS) and Infrastructure as a Service (IaaS), PaaS enables developers to create software solutions on a cloud-based platform, eliminating the need to invest in or maintain hardware and foundational software (Kuyucu, 2011).

Infrastructure as a Service (IaaS): IaaS delivers essential computing resources—such as servers, software, storage, and networking components—as on-demand services. This model allows users to build platforms and run applications without the need to purchase, host, or manage physical infrastructure. Instead, infrastructure resources are provided as virtualized elements that users can control through a service interface, making IT operations more flexible and cost-effective (Olive, 2011).

5. Cloud service deployment models

Regardless of which service model is chosen, cloud services can be deployed in one of four main ways:

Private Cloud: A private cloud refers to a cloud infrastructure that is exclusively dedicated to a single organization, allowing for greater control over security, privacy, and governance. Also known as an internal or on-premises cloud, it can be managed either by the organization itself or by a third party, and may be hosted either on-site or off-site.

Public Cloud: Public cloud infrastructure is available to the general public or a broad industry group and is owned and managed by a third-party provider that offers cloud services. Often referred to as an external or multitenant cloud, this model allows multiple users to access and share resources (Jeffery & Neidecker-Lutz, 2010).

Community Cloud: This type of cloud infrastructure is designed for a specific group of organizations with shared interests or goals, such as those within the same industry or regulatory environment. Known as a community cloud, it is managed either collectively by the participating organizations or by a third party, and may be hosted on-site or externally.

Hybrid Cloud: A hybrid cloud combines two or more distinct cloud infrastructures—such as private, public, or community clouds—linked together through standardized technologies that enable seamless data and application portability. This model offers the advantages of multiple deployment approaches and greater operational flexibility (Junjie *et al.,* 2009; Mohammadi & Mohammadi, 2014).

6. Benefits of cloud accounting in business

Cloud accounting provides a wide range of benefits that impact the following aspects of business operations

Reduced Costs: Using traditional accounting software typically involves both a significant initial investment and ongoing maintenance expenses. Cloud accounting, however, can greatly lower these costs. Since there is no need to purchase hardware or software licenses, the upfront financial burden is significantly reduced. This is particularly beneficial for small businesses that may not have the budget for costly infrastructure or complex software implementations. Cloud-based solutions allow them to

operate with the same advanced IT systems used by larger or multinational corporations, while only paying for what they use under a flexible "pay-as-you-go" model. Users can opt to pay per usage or via a monthly subscription, depending on their needs (Pacurari & Nechita, 2013).

With cloud accounting, there's no requirement for maintaining physical equipment like servers, hard drives, or external memory devices. Many businesses have significantly cut costs by switching to cloud systems, as the software is accessed via the internet rather than being installed locally. Instead of buying the application outright, users pay to access and utilize it (Dimitriu & Matei, 2015).

Additionally, because the software is delivered online, users always have access to the most up-to-date version. Updates are typically carried out automatically during off-peak hours—such as early mornings or late evenings—ensuring minimal disruption to daily operations. This makes cloud-based accounting not only cost-effective but also a time-saving and convenient solution. Automatic updates require no action from the user, and the latest features are made available instantly—all through a simple internet connection (Dimitriu & Matei, 2015).

Increased productivity: One of the major advantages of cloud accounting is its 24/7 availability, allowing users to work at their convenience without being restricted to traditional office hours. This flexibility boosts productivity, as users are no longer tied to a specific location, time, or device. Whether using a smart phone, tablet, or computer, users can instantly access financial data, such as bank balances and recent transactions. A real-time dashboard provides a clear overview of the business's financial position, enhancing visibility and control over cash flow (Dimitriu & Matei, 2015).

Cloud-based solutions also support business continuity in various ways. Financial data is automatically backed up according to the customer's schedule—daily, weekly, or monthly. Cloud providers operate in secure and stable environments, which is essential for safeguarding sensitive financial information. Data is encrypted using high-level security protocols and stored in the cloud rather than on a single, vulnerable device. Even if a laptop is lost or damaged, users can still access their data from another device, ensuring operations are not disrupted. This ability to resume work after unforeseen incidents underlines cloud accounting's role in maintaining uninterrupted business operations (Pacurari & Nechita, 2013). Before the advent of cloud computing, productivity typically halted when employees left the office. Now, with online accounting, work can continue anytime, from anywhere.

Another productivity-enhancing feature is ***scalability***—the ability to adjust resources based on the company's needs. Cloud accounting allows businesses to quickly scale up or down since applications are accessed via the internet. Unlike traditional software, where companies must estimate and invest in IT resources upfront, the cloud model enables businesses to start with what they need and expand as they grow. This flexibility is especially beneficial for small businesses, allowing them to adapt easily and efficiently by adding new features or tools as needed (Dimitriu & Matei, 2015).

Geographically unrestricted access enabled by remote network connectivity: An important advantage of cloud accounting is the ability to access up-to-date financial information from virtually anywhere. This real-time access enables accountants to deliver more accurate insights and respond to tasks more efficiently (CPN, 2013). With just an internet connection, users around the world can view and update financial data at any time, without needing to install additional software on their devices. This level of accessibility is what makes cloud computing a prime example of 'ubiquitous computing'—technology that is seamlessly available wherever and whenever it is needed (Dimitriu & Matei, 2014).

Improved performance driven by greater business agility and operational flexibility: A reliable high-speed internet connection combined with mobile technology facilitates rapid data exchange and real-time engagement. As a result, organizations can respond swiftly and effectively to ever-evolving business conditions (Dimitriu & Matei, 2014).

Unlimited data storage and processing capabilities, along with automatic backups to ensure the security and preservation of customer data: It also enables client companies to easily scale their capacity up or down based on their current needs, without incurring additional costs (Dimitriu & Matei, 2014).

Elimination of upgrade costs: as services and new features are automatically provided by the service provider, there are no additional fees required for software upgrades. Clients always have access to the most recent version and latest features without any extra charges (Dimitriu & Matei, 2014).

***User-friendly interface*:** Cloud accounting platforms are designed to be intuitive and easy to use, making accounting terms and functionalities more accessible. They enable accountants to quickly generate real-time financial reports, allowing more time to focus on data analysis and delivering valuable financial insights (Tulsian, 2010).

***Enhanced communication and collaboration*:** Cloud-based accounting systems allow businesses to share financial data with clients in real time, fostering more effective communication and better collaboration (Murphy, 2011).

7. Risks associated with cloud accounting

Despite the many advantages, several concerns surrounding cloud services continue to hinder widespread adoption of cloud accounting.

Data privacy and security of financial information: In today's highly competitive business environment, companies are particularly cautious about the confidentiality of their financial data. Access to accurate and timely information can offer a significant advantage, making data security a top priority. Although cloud service providers (CSPs) have implemented robust security measures, many business owners remain apprehensive about the potential risks. A primary concern is the unauthorized access, theft, or even surveillance of sensitive financial information by third parties or the CSP itself. This lack of full control over data security remains one of the major barriers to migrating to cloud-based systems (Dimitriu & Matei, 2014). **Dependence on Internet Connectivity:** Another concern for business owners is the potential risk of losing internet access. Since cloud accounting relies on an active network connection and efficient data transfer speeds, some worry that service interruptions could disrupt business operations. However, this concern is largely unfounded. Most cloud service providers have established detailed and reliable service-level agreements (SLAs) with their network partners to ensure uninterrupted access and minimal downtime for users (Pacurari & Nechita, 2013).

Before committing to a cloud solution, it is strongly recommended that businesses test the software they are considering. As these services are accessible online, many cloud accounting providers offer free trial periods. This allows potential clients to evaluate the software's functionality and determine whether it meets their specific business needs—without making an immediate long-term investment.

Nevertheless, these risks are not insurmountable (Molnar & Schechter, 2010) and may, in fact, serve as motivation for cloud service providers to enhance the quality, reliability, and functionality of their offerings.

8. Suggested solutions to overcome risks

While risks associated with cloud accounting exist, they are manageable with the right strategies. In many instances, cloud service providers can offer a higher level of data security than what companies—especially small and medium-sized enterprises—could achieve with their in-house systems. Regardless of business size, it is essential for organizations to adopt a well-defined risk management strategy.

Reputable cloud providers typically enforce strong security and privacy protocols and establish proactive risk response plans. These measures are designed to help clients address potential security threats effectively and ensure that critical applications can operate safely in the cloud environment (Computerworld, 2014).

Legal and regulatory concerns, particularly those involving data location and compliance, can be resolved by incorporating clear, detailed terms into the service agreement. To address concerns about internet outages, businesses should ensure that their provider maintains a solid service-level agreement (SLA) with their network partner. This helps to minimize or eliminate downtime. Furthermore, some cloud providers offer offline functionality, enabling users to continue working even when an internet connection is temporarily unavailable.

9. Conclusion

Cloud accounting software leverages cloud technology to store financial data, allowing business owners and employees to access this information from any location with an internet connection. As

cloud computing continues to gain popularity, more businesses are adopting internet-based technologies across various functions—from smart appliances to online education platforms. One area experiencing significant growth in cloud adoption is accounting.

Many small businesses worldwide are now using cloud-based solutions to manage their financial activities, moving away from the traditional reliance on local hard drives for data storage and access. This shift reflects a growing trend toward greater flexibility, efficiency, and accessibility.

For accounting firms, the adoption of cloud computing can be particularly advantageous. It enables the immediate analysis of large volumes of financial data and may reduce the effort required to compile semi-annual or annual financial reports. In an economy where businesses seek faster, more cost-effective services, the cloud opens up new possibilities. With clients able to handle basic bookkeeping and tax tasks themselves, accountants have the opportunity to transition into more strategic roles—offering insights and serving as trusted business advisors.

Although cloud accounting is expected to play a significant role globally in the near future, there remains a noticeable lack of comprehensive academic research on the subject. Few published papers offer a thorough overview of this emerging phenomenon. This paper aims to contribute to filling that gap by providing insights drawn from recent studies and expert perspectives, helping readers evaluate whether to embrace the technological advancements offered by cloud computing. Additionally, the paper presents a concise introduction to cloud accounting, which may serve as a useful starting point for future researchers in this area. However, due to the limited availability of existing literature, certain limitations in the depth of analysis may be present.

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