
Investigating the Effects of Cloud based Computing on Accounting Information System

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Abstract: *Accounting has evolved consistently over the past decades, with each new addition and innovation making it even better and challenging while providing satisfaction and convenience to the users. This paper seeks to look at the overview of cloud accounting, make a comparative study of the services of five major cloud accounting services in the world among others. Expost facto research design was used in gathering primary and secondary data; The study recommends that organisations should adopt cloud accounting as it will make accounting easily accessible, less expensive and time saving.*

Keywords: Cloud accounting, cloud software, accounting system

1.0 Introduction

The world is rapidly heading now to evolution, technology, and an excessive use of modern techniques because of imposed requirements of this era upon us. We were obliged to obey them due to what this technology poses as a source of power and authority. In addition, the world is completely dependent on these technologies in the field of education, such as computerized lessons; in the field of communications such as the development of cellular devices and communication networks; in weapons technology to identify its goals and remote control them, and in the field of business such as the development of information systems that it governs. When applied in the field of business, precisely, these technologies will impose some changes in the methods used in the functions of information systems such as methods of data collection, processing, and report. It may also affect the elements of these systems by addition, dispensing or modification, especially accounting information systems. As a result of the technological changes witnessed by the world in recent times, a new notion was introduced in the field of computing known as Cloud Computing, which provided data special for companies on demand anytime and anywhere via the Internet in accordance with the software and security and confidentiality standards of the data. This change did not stop at computer science and its regulations only, but to exceed to the accounting science and its information system by making some changes and adding other elements to its system such as software and hardware. This is especially after the introduction of the computer and its development from a manual to an electronic system. Now and after the emergence of cloud computing that is ruling the

accounting information system due to the nature of the close relationship between that system and the technological changes or information technology (Bagranoff et. al., 2010, P 36), it leads us to question the effect that cloud computing might have on the accounting information system.

Accounting has evolved consistently over the past decades, with each new addition and innovation making it even better and challenging while providing satisfaction and convenience to the users. Modern accounting has reached the present stage after undergoing gradual changes over the years; by keeping pace with the fast evolving technological advancements. There has been consistent modification and development from manual methods to technological alternatives which has made accounting easier and convenient for users. The recent shift in accounting towards faster technologies has immensely increased its capacity to serve users.

The recent trend in accounting; Cloud Accounting is expected to make accounting easily accessible, less expensive and time saving. Cloud Accounting involves use of cloud-based software through any device having internet connection.

1.1 Objectives of the Study

- To have an overview of Cloud Accounting
- To make a comparative study of the services provided by five cloud accounting companies across the world
- To understand the impact of Cloud Accounting in the present scenario with insights from accounting professionals

2. 1 Conceptual Framework

Cloud Accounting

Accounting has evolved consistently over the past decades, with each new addition and innovation making it even better and challenging while providing satisfaction and convenience to the users. Modern accounting has reached the present stage after undergoing gradual changes over the years; by keeping pace with the fast-evolving technological advancements. There has been consistent modification and development from manual methods to technological alternatives which has made accounting easier and convenient for users. The recent shift in accounting towards faster technologies has immensely increased its capacity to serve users.

Cloud accounting is the latest accounting trend which has emerged into the enterprises in the recent times. It is equal to the self-install accounting software, but in cloud accounting it is hosted on remote servers. In cloud accounting the data is transferred to a cloud, where it will be further processed, and it will return to the user. Cloud accounting helps to get real-time reporting throughout the enterprise. Small and Medium enterprises have achieved a maximum benefit from cloud-based services mainly with their accounting and financial services. Using cloud accounting tasks can be performed off-site and not necessarily on the user's computer. Even the branches of the same organization can access the same version of the software.

Using cloud accounting software:

Cloud Accounting Software was mainly developed to solve the problem of portability of data. Earlier, a file

required to be accessed later was stored on hard drives or USB flash drives. Devices like Hard drives, USB flash drives and other portable storage devices made transporting information between multiple machines an easy process. However, these traditional methods of storage had significant drawbacks. For example, data stored on hard drives are susceptible to loss of data through different situations such as fire accidents, non-functioning of any of the tiny mechanical parts of the drive, etc. In case an important document is stored on a USB flash drive there is always a chance of losing the data during travel or due to damage occurring to the drive.

The working of Cloud based accounting software is like the other cloud-based software. Files which are generally stored on a hard drive are stored online. This ensures that the information is easily accessible. With the development of mobile devices, especially the smart phones, cloud-based accounting enables the users to manage their finances from wherever they are.

The basic steps which can be followed to use Cloud based accounting software are:

1. SCAN

To scan or photograph documents

The first step is to scan or take a photograph of the required financial documents

2. Digital Version

Digital versions of financial documents can be made through a variety of devices such as a Mobile Phone Camera and Office Scanner.

3. UPLOAD

Upload files to the cloud

The cloud accounting service provider gives the client a Login ID and a Password so that the client can access his In cloud account, upload the documents to the cloud and immediately the documents become a part of the service provider's records.

4. VIEW

Access the documents whenever required

By the use of Cloud accounting, there is access to a flexible service which allows the users to view their business accounts wherever and whenever required and through any device.

Advantages of cloud accounting:

1. Accessibility:

By the use of cloud accounting software, users can access data from any place and through any device having internet connection. This provides high amount of flexibility to the small and large enterprises. Work groups and teams around the world can access data and information and work together with no hindrance of place. Data sharing becomes very easy with the help of cloud accounting. Users are required to have access rights to the same system with their unique passwords

2. Security:

Security of data remains a major concern for any individual or enterprise. Cloud Accounting has a similar

mechanism of storing data as the traditional software. Remote servers contain effective security protocols. In case of loss of the device such as a laptop, data stored on remote storage is likely to keep the information much safer than storage on device. The threat of data theft is eliminated in Cloud Accounting as the user must log into the cloud account to access the software.

3. Cost:

Capital investment is low as there are no servers at the client's location. Enterprises generally spend huge amounts on infrastructure required to store and manage data. Also, this means there is lesser requirement of IT staff, so less labour costs and significant savings

4. Easy to Use:

The software is very simple to use and contains the basic functions. For example, with live feeds, the user has to carry out online banking and immediately the banking transactions are uploaded.

5. Bandwidth

Bandwidth refers to the amount of data that can be transported from one point to another within a given time period. Cloud storage does not require attaching of large files to email. A link can be sent to refer to their colleague to the cloud.

6. Availability of vital information:

With Cloud Accounting, information is available to the user as soon as the transactions are entered on the systems. This ensures timely management of finances, better and quicker decisions.

Drawbacks Of Cloud Accounting

1. Necessity of an Internet Connection:

A significant disadvantage of Cloud based accounting is that it can be accessed only with the presence of an internet connection.

2. Loss of Control:

The data of an organisation is stored on a server unknown to them. This means the control over the data is not entirely in their hands, which could be a matter of concern to the organization.

3. Lack of coordination:

The standard accounting package provided by the provider doesn't suit all the needs of clients. Sometimes an organization may have needs which are not matching the standard accounting package services.

2.2 Theoretical framework

Adoption theory: The Technology Acceptance Model (TAM) is used as an adoption theory and helps to understand user's acceptance of adopting IT in terms of perceived usefulness and future usage intentions. More specifically, the TAM recognizes cognitive instrumental processes and social influence as driving forces on the adoption and acceptance of IT (Venkatesh & Davis 2000). Four cognitive instrumental processes are seen to influence the perceived usefulness and future usage intention of a certain technology. These cognitive processes are job relevance, perceived ease of use,

output quality, and result demonstrability. The judgement about perceived usefulness is a cognitive process. Users compare what a system can do with what they need to get done in their job (Venkatesh & Davis 2000). Social influence processes are subjective norm, voluntariness, and image (Venkatesh & Davis 2000). Subjective norm is defined as a person's perception that the people who are important to someone think certain behaviour should be performed (Fishbein & Ajzen 2015, p. 302). Voluntariness is a moderating variable and defined as the extent to which potential adopters perceive the adoption decision to be non-mandatory (Agarwal & Prasad 2017). Image is defined as the degree to which use of an innovation is perceived to enhance status in one's social system (Moore & Benbasat 2019, p. 195). The perceived usefulness is an instrumental motivation factor for businesses to deploy more sophisticated IT. As an example, employees perceive IT to be useful if it helps them to manage the fast-paced and complex working environment in a more efficient and effective way (Gilroy & Desai 1986). The technology usage decisions of younger employees are strongly influenced by their attitude toward using a particular technology. In contrast, the usage decision from older employees is influenced by subjective norms and social influence, and usually become smaller over time (Morris & Venkatesh 2016).

Agency theory: Agency theory provides insights on how to enhance efficiency of information management between principal and agents. The principal engages the agent to perform some service on his behalf which involves delegating some of his decision-making authority over to the agent (Eisenhardt 2019). There are three broad assumption categories which undermine agency theory. Human assumptions. Every party act in their own self-interest, has a bounded rationality and is risk averse. Even though both parties are seen to engage in cooperative behaviour, their individual risk functions differ in terms of goals and attitudes (Jensen & Meckling 2016). In a simple agency model the agent is more risk averse² than the principal (Eisenhardt 2019). Moreover, the principal seeks long-term business success, while the agent is focussed on the profit he can make in the short-term. Organizational assumptions. Due to asymmetrical distribution of information, conflicts of interest may occur (Eisenhardt 2019). Moral hazard refers to a lack of effort on part of the agent while adverse selection is a conflict arising from the misrepresentation of the ability by the agent. To illustrate this, the agent usually has more information about his or her actions and intentions than the principal does– the principal cannot completely verify the agent's skills and abilities, either at the time of choosing the agent or while the agent is engaged for the principal (Eisenhardt 2019). The costs related to potential arising conflict of interest are referred to as agency costs. Informational assumptions. Information is a purchasable commodity. In theory, this means that the principal can invest in formal information systems to monitor the actions of the agent (Eisenhardt 2019). The principal can choose to contract on outcome or on behaviour, i.e., investing in information systems which reveal the agent's behaviour to the principal (Eisenhardt 2019). If no monitoring mechanisms are in place, it can be argued that the principal puts more trust into the agent. With respect to the cloud context, trust is defined as knowledge about a provider's security which is created by gathering knowledge about a system. One purpose of agency theory is to indicate which contract between two

parties is the most efficient under varying levels of outcome uncertainty, risk aversion, information, and other variables. In other words, an increase in efficiency is used as an effectiveness criterion.

Resource dependency theory. The resource-based view of a firm helps to understand the resource management as a more strategic action within any business. For the reason that businesses are not self-sufficient and often lack the resources needed for doing business, the access to important resources needs to be secured. A lack of resource availability can harm a firm's survival, so that stability and certainty in resource supply is of vital interest for any business. Resource consolidation between various actors constructs a larger network of interdependent stakeholder (Pfeffer & Salancik 2018). Resource type. In general, a resource or also referred to as an asset, can be classified in physical or monetary terms; or in the form of information (Pfeffer & Salancik 2018). Complementary assets which can easily be integrated into the existing organizational structure, can help generate value from new technologies Dilemma. Even though organizations seek stability and certainty in their supply of resources, they do not want to be controlled by their environment. This causes a dilemma as resource availability and independence do not go hand in hand without giving up some autonomy for the benefit of certainty (Pfeffer & Salancik 2018). The degree of pressure to adjust to the demands from the environment which controls a specific resource is determined by the importance and availability of a resource, as well as by the level of control other businesses have over a particular resource (Pfeffer & Salancik 2018). For a firm to have power over another, the resource exchange relationship should be asymmetric, whereas the exchange of all resources between two businesses needs to be inspected. Dependency means that an actor has control over the allocation, access, or use of a resource which is difficult to attain from other businesses (Pfeffer & Salancik 2018). If the resource exchange constitutes a smaller proportion for one organization compared to the other, it will cause asymmetry because the resource exchange is not equally important for both actors. If a company is aware that their resource delivery is a critical or important part of another firm's operation and survival, they could exploit the relationship in terms of their own self-interest (Pfeffer & Salancik 2018). Dependency is minimized if an organization does not determine, formulate or express the demands of another actor or if an organization is capable of developing actions or outcomes that will satisfy the external demands of a service partner (Pfeffer & Salancik 2018)

Institutional theory: Institutional theory is based on the association between organizations and their environment, thereby presenting insight into the tensions organizations face when presenting and organizing themselves within a wider social setting.³ Businesses are seen to institutionalize which means that they infuse with value beyond the technical requirements of a task at hand. This becomes clear, if one understands that any business employs human resources in one way or another and it is the individual who ultimately forms the decisions. In an aggregated version a business can thus be regarded as a social enterprise (Smith, M. & Beshrov 2015). While the agency theory recognizes that actors in business relationships have a bounded rationality, institutional theory goes deeper and explores normative and cognitive processes which impact a social enterprise in forming decisions. The fundamentals of institutional theory advocate that an organization changes because it wants to attain a similar business status compared to its competitors and access to resources. In such, change is

driven by cognitive processes and a tendency toward conformity with major norms from legal governmental regulations, traditions, social rules, and values. Entering to contradictory demands has been thought to diminish alignment, fostering instability and ultimately threatening existence. This is the reason why organizations aim to comply with the expectations of society at a specific time and place (Smith, & Beshrov 2015). Homogeneity versus real utility. As all these factors affect the diverse participating organisations in a marketplace, it can result in homogeneous structures and practices among various businesses. In fact, it is questioned if organisations react to pressures from their institutional environments and implement structures or procedures that are socially acknowledged as being the suitable organizational choice, or if new structures and management practices are only implemented with the intention to legitimate themselves by other organisations and social actors, notwithstanding of the real utility (Smith, & Beshrov 2015).

2.3 Empirical Framework

Comparative Study of The Services Provided By five Cloud Accounting Companies Across The World.

Cloud Accounting is provided by many companies across the world. These are Top 5 companies providing cloud accounting services on the global platform are:

FRESH BOOKS:

Fresh Books is a cloud-based accounting software service designed for small enterprises. It basically sends invoices and receives payment for their services. It was founded by Mike McDerment and Joe Sawadain 2003

XERO:

Xero is a software company that develops cloud based accounting software for small and medium enterprises. It was founded by Rod Drury and his personal accountant when they felt that traditional desktop accounting software had become outdated and decided to create a modern cloud-based product.

ZOHO:

Zoho is a cloud software and system developer for business management. The company was founded in 1996 by Sridhar Vembu and Tony Thomas in Pleasanton, California and has development offices in India.

QUICK BOOKS:

Quick books are accounting software which is marketed and developed by Intuit. It is basically used by small and medium enterprises for accounting functions and cloud based services, which deals with payments, payrolls etc. Intuit was founded in 1983 by Scott Cook and Tom Proulx in Mountain View, California, USA.

GO DADDY:

Go Daddy bookkeeping facilitates tools for tracking income and expenses. Their services are directly

collaborated with Amazon, eBay etc. GoDaddy was founded in 1997 by Baltimore, Maryland, entrepreneur

Table1, showing the various services provided by the top 5 cloud accounting companies

Company name/parameter	Fresh books	Xero	Zoho	Quick books	Go daddy
Double entry		✓	✓	✓	
Mobile access		✓	✓	✓	
All major AR/AP transaction forms	✓	✓	✓	✓	✓
Payroll		✓		✓	
Inventory tracking					✓
Life support	✓				✓
Document management		✓		✓	
Multi-currency support	✓	✓	✓	✓	
Customer vendor portals	✓		✓		
Training availability		✓		✓	
Estimated quarterly tax					✓
	4	8	7	9	3

Source: Field survey 2020

Quick books provide the maximum number of services (9/11) to the SMEs .Go Daddy provides the least number of services (3/11) to the SMEs. Mobile access is one service which is provided by all the 5 companies. Estimation of quarterly taxes is one service which 4 out of 5 companies fail to provide.

3 Methodology

Primary data were collected from accounting professionals of various organizations. Secondary data has

been collected from sources such as professionals, books, journals, websites, etc. The data collected has been helpful in understanding of concepts and the impact.

4 Data presentation

A survey conducted amongst 33 accounting professionals to know the impact of Cloud accounting in the present business scenario has revealed the following results:

1. Are you aware of the recent trends in Accounting?

Response	No. of Response	Percentage %
Yes	28	84.85
No	5	15.15
Total	33	

2. Do you know about Cloud Accounting?

Response	No. of Response	Percentage %
Yes	30	90.91
No	3	9.09
Total	33	100

3. How do you know about it?

Response	No. of Response	Percentage %
Print media	2	6.06
Internet and social media	21	63.64
Workplace	10	30.30
Tv or radio	0	0
Total	33	100

4. Do you use cloud Accounting?

Response	No. of Response	Percentage %
Yes	4	12.12
No	29	87.88
Total	33	100

5. Do you think Cloud Accounting leads to reduction in human resource employed in an organisation?

Response	No. of Response	Percentage %
Yes I agree	9	27.27

I partially agree	19	57.58
I don't agree	5	15.15
	33	100

6. Do you think Cloud Accounting leads to minimization of manipulations in accounting?

Response	No. of Response	Percentage %
Yes	26	78.79
No	7	21.21
Total	33	100

7. How well is the sensitive financial data secured by use of cloud accounting?

Response	No. of Response	Percentage %
Not good	1	3.03
Average	24	72.73
Very good	8	24.24
	33	100

8. Is the financial data analysis of Cloud accounting better than the prevalent alternatives?

Response	No. of Response	Percentage %
Yes	9	27.27
No	24	72.73
Total	33	100

9. Do you think Cloud Billing is more efficient than the prevalent alternatives?

Response	No. of Response	Percentage %
Yes	28	84.85
No	5	15.15
Total	33	100

10. What do you feel about the efficiency of Cloud accounting in fraud detection?

Response	No. of Response	Percentage %
Excellent	2	6.06
Good	24	72.73
Average	7	21.21

Not good	0	0
Total	33	100

11. Has Cloud Accounting brought any changes in the auditing process?

Response	No. of Response	Percentage %
Yes	28	84.85
No	5	15.15
Total	33	100

12. Is cloud accounting beneficial to determine the true financial position of a firm?

Response	No. of Response	Percentage %
Yes	25	75.76
No	8	24.24
Total	33	100

4. Findings/Discussion

The survey reveals that few professionals believed that the use of Cloud accounting will be increased in the days to come and will make a huge impact on business enterprises. There is still lack of awareness and training Cloud accounting could be lot more helpful if it is appropriately integrated with the billing and purchasing processes. Cloud accounting has helped in saving a lot of effort and time and the more integrated it is with the other systems the more useful it will be. Some of the professionals said that they are new to this concept. The survey reveals that 84.85% professionals are aware of the recent trends in accounting while 15.15% are not aware and 90.9% professionals are aware of cloud accounting. It has been found that 63.64% professionals came to know about Cloud accounting through Internet and social media, 30.30% through their workplace and 6.6% through print media. There are 87.88% professionals who do not use cloud accounting and 12.12% do. It states that 27.27% professionals completely agree that there is reduction in human resource employed, 57.58% professionals partially agree and 15.15% do not agree. Also, 78.79% professionals agree that cloud accounting minimizes manipulations whereas 21.21% disagree. It is observed that 72.73% professionals consider security of sensitive financial data in cloud accounting to be average, 24.24% consider it very good and 3.3% professional feels it's not good. Also, 72.73% professionals agree that financial data analysis of cloud accounting is better and 27.27% disagree. There are 84.85% professionals who agree Cloud billing is more efficient and 15.15% disagree. Professionals who feel efficiency of Cloud Accounting in fraud detection is good are 72.73%, 21.21% consider it as average and 6.6% consider it to be excellent. It has been stated that 84.85% professionals believe that cloud accounting has led to changes in auditing process whereas 15.15% do not feel the same. Also, 72.73% professionals partially agree that Cloud accounting is beneficial to determine the true financial position of a firm, 24.24% strongly agree and 3.3% strongly does not agree. Majority of the

professionals have answered that they partially Agree" about features such as impact of cloud accounting on reduction of human resource employment and to determine the financial position of a firm, which indicates that they are still not fully aware of the impact of cloud accounting. Also, majority of the professionals Agree" that cloud accounting minimizes the manipulations in accounting, helps in fraud detection , has better analysis of financial data, has efficient Cloud billing options and has led to changes in the auditing process, which indicates a positive sign for future of cloud accounting.

5 Conclusion

The continuous changes occurring in Cloud Accounting are expected to affect a wide range of industries and enterprises, and every business owner must sooner or later face the impact of this shift. Cloud accounting is sure to have great impact on the growth of SMEs. With an array of benefits such as cost efficiency, high security, ease of use, etc. to offer, cloud accounting is 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 service at a lesser cost. The customization offered by cloud accounting is a great benefit to any business adopting it, which enables every business whether small, medium or large to customize cloud software according to their requirements. In the near future, access to on-demand, actionable business data will be a daily necessity for an enterprise. Entrepreneurs will no longer use the traditional accounting system since through the use of Cloud Accounting vital data is made readily available. Thus, entrepreneurs can make smarter and faster decisions with confidence.

5.1 Recommendations

Through the presentation of the results, many effects of cloud computing on the accounting information system are reflected. Furthermore, it has many advantages from being used. In the light of these conclusions, the researcher recommends that:

- When applying cloud computing, the infrastructure for information technology must be revised such as software and procedures for operations and other elements of the accounting information system.
- The cloud computing should be applied by companies since it has many advantages, such as providing expenses of buying hardware and software, reducing the size of the enterprise, reducing the number of staff, speed, and accuracy in the completion of the operations and facilitating the procedures.
- A study should be conducted on the possibility of industrial or commercial companies to apply cloud computing.

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