



AN ANALYSIS OF NOVEL ARCHETYPE IN BUSINESS ACCOUNTING THROUGH CLOUD COMPUTING

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ABSTRACT

Nowadays, the impact of globalization, the rapid advances in science and technology, the rise of big data, the wide spread of internet-based applications and even standardization have created the proper context for the emergence of a new concept -cloud accounting. The digitization of business, the increasing amplitude of virtual reality, the metamorphosis of traditional computer business schemes towards cloud-based solutions are underlying drivers of change that shape the actual principles of the market. On the other hand, accounting is an essential component of the framework that sustains any enterprise's activity. The focus of this article is the impact of the cloud computing paradigm on the accounting domain. We highlight different points of view and definitions assigned to the concept of 'cloud accounting', and also, the benefits and possible risks determined by the adoption of these services, particularly in relation to the accounting department. Our approach is specifically centered on the financial implications and the pricing offerings that come along with cloud computing. Furthermore, the paper analyzes the key aspects that should be considered by any company when deciding to choose the right accounting system. Understanding the specific requirements of the business is vital - be it online or offline.

Keywords: cloud computing; accounting model; cloud accounting; Software as a Service;

1. Introduction

The world as we know it is subject to continuous change. Globalization and the increasing development of technology have impelled the need for economic innovation in order to achieve

performance and progress. A study developed in 2012 by ACCA and IMA has listed a set of drivers of change that would shape the business and consequently, the accounting landscape for the next decade [1].

The economic uncertainty and information technology transitions are factors of change included in this study. Rapid advances in science, demographic change determined by globalization, and the promotion of new business models, will collectively form different expectations and economic values. The increasing complexity of the business environment, along with enhanced competition at a global level and the reduction of the business cycles are preconditions that would challenge the accounting profession. On the other hand, the continuous need for global accounting standards and practices is also influencing the future of accountants

Regarding the development of technology, companies and therefore the accounting department are generally influenced by: the digitization of business, the intense potential created by the internet, the implications of big data and the growing importance assigned to data mining. In this context cloud computing made its way and created new business models. The impact of cloud computing is presently undisputed and will provide the basis for future metamorphosis of the economic field [2].

The accounting profession must firstly achieve the insight regarding these forces that will reshape the future of the organizations they support. Secondly, accountants should objectively evaluate the effects of these changes in relation to the entire accounting system: standards, processes and staff. Thus, the impact of future change includes all accounting aspects, from the role of accounting employees, through to the content of financial reporting standards and the reformation of tomorrow's accountant.

The following article presents in a qualitative manner, the implications of cloud computing in the accounting field. The study introduces the concept of 'cloud accounting' through different definitions and opinions especially those from the IT domain (which is in fact, the very origin of the cloud computing phenomenon). Through an exploratory research we described the benefits and possible risks determined by the adoption of these services in the accounting area.

The article is built upon a theoretical approach and presents the state of the art for the cloud accounting paradigm. Furthermore, we should mention that this notion is fairly topical in the business environment and the available information on this subject is especially related to the information technology industry. Very little has been written about cloud accounting from the accountants' point of view. Therefore, the paper is mostly based on the knowledge derived from the "technical" angle. Other aspects discussed in this paper are the implications that come along with the adoption of cloud accounting solutions, both technical and financial.

Nomenclature

- **ACCA Association of Chartered Certified Accountants**
- **CAI Cloud Accounting Institute**

- **CSP** **Cloud Service Provider**
- **IT** **Information Technology**
- **IMA** **Institute of Management Accountants**

2. What is Cloud Accounting?

In order to fully understand the valued created by cloud accounting, it is imperative to realize the potential of cloud computing in the business landscape. Cloud computing is no longer a new paradigm and it generally refers to business performed over the Internet, without the use of computer hardware or software license.

In 2008, Buyya et al. defined cloud computing as ‘a type of parallel and distributed system consisting of a collection of interconnected and virtualized computers that are dynamically provisioned and presented as one or more unified computing resources based on service-level agreements’ [3]. It can actually be considered ‘the next generation of computing’. In other words, cloud computing means: offering computer hardware and software applications as services through the Internet. It allows users to store data and use applications through different devices located in several locations.

After the deployment of cloud computing in different types of businesses, at a certain point, it has also reached the accounting field. A company’s accounting should not be apart from the business itself, but it should rather be an integrant component, with an essential role in the business’s dynamics. In order to achieve this objective, the accounting model should be ‘co-developed’, thus adding value both for the financial aspects and for the business itself [4].

Traditional applications for financial accounting are sometimes complex and too expensive, especially for a small or starting business. They also require storage capacity, Internet bandwidth, and a specialized IT staff to configure, install and update the accounting software [5].

Today’s accounting model implies ease of access, customization, collaboration and ultimately, the use of the Internet through cloud computing [6]. The basic principles that drive cloud computing, combined with the activities carried out by accounting software companies, have led to the emergence of *cloud accounting*. This concept, also referred to as ‘online accounting’, involves the same functionalities as an accounting software installed on the client’s computer, but which actually runs on the CSP’s servers. Basically, it provides accounting services by means of cloud computing solutions.

In fact, an official definition for ‘cloud accounting’ is not yet established, but it is rather explained through its advantages and functionalities. The main characteristic is the use of the accounting service without the necessity to install any software or make investments in computer infrastructure, hence the naming of the service.

The application is accessed through the web browser, over the Internet. The customer’s data is securely stored and processed on the provider’s servers — ‘in the cloud’. Therefore, the ownership of the intellectual property belongs to the CSP, while the client is only able to use the application – he

cannot take possession of it. All that is required is an Internet connection and companies can access their financial data from any device and location.

A cloud-based accounting solution insures the possibility to address numerous and complex demands and activities through an integrated on-line system, thus reducing the amount of labor required by the accounting department. Amongst the activities [5] carried out by cloud accounting services we can mention:

- Automatic generation of accounting notes for different transactions and operations,
- Automatic review in order to ensure the correlation between financial and management accounting for the accounts involved,
- Preparation of any required periodical statements or synthetic financial reports and dashboards,
- The possibility to use alternative accounting plans for the preparation of accounting reports using different financial reporting standards (international financial rs, us-gaap),
- The possibility to calculate various financial rates and formulas and generate accounting reports and documents whenever they are necessary.

A cloud accounting provider can actually eliminate the need to hire an accountant or bookkeeper [7], because the service will perform any financial operation or transaction as a ‘virtual’ finance manager. Of course, the offering of cloud accounting services is divers and covers many forms of deployment that insure different functionalities, in compliance with the customer’s requirements.

Based upon the same principles as any cloud service, cloud accounting solutions can be provided in the same manner. Depending on the customer’s needs or preferences, the service can ensure different types of capabilities.

3. Benefits and potential risks of Cloud Accounting

The world of accounting software is rapidly shifting towards cloud computing. A great number of accounting software vendors have already moved their products to the cloud and provide different forms of cloud accounting solutions. Large accounting companies like KPMG, PricewaterhouseCoopers, Ernst & Young, Deloitte, Sage or SAP have each presented their own cloud offer and also published White Papers that present the benefits and functionalities provided through different types of services.

A list of cloud accounting solutions would also include Financial Force.com, NetSuite, Microsoft Office 365, Fresh Books, Liquid, QuickBooks Online, Myob, Xero, Aqilla, Mint.com or Wave accounting, each of them ensuring specific or custom-made functionalities. The cloud accounting market is beginning to rise by delivering solutions that are seriously worth taking into account. On the other hand, companies from all over the world benefit from cloud accounting services as customers.

3.1. Benefits of cloud accounting

Accounting software is taken into a whole new dimension through cloud computing. Doing accounting in the cloud generally implies that everyone in the client company can access the same financial data, at the same time, from different locations, with a certain set of applications that are provided through an Internet connection [8].

The advantages assured through the use of cloud accounting cover the following areas:

- Reduced costs, mostly because of the fact that there is no need for upfront capital expenditure for in-house IT equipment or software licenses. Also there is no need for expensive IT staff to install or upgrade applications or maintain servers. Software applications and storage space can be rented and the service is paid for through a monthly fee. By ‘paying as you go’, the company can optimize costs by turning fixed costs into variable costs. Such an advantage is particularly helpful for small businesses [9] that usually operate on a tight budget and cannot afford purchasing and installing software and hardware systems that might not properly respond to the business’s needs.
- Geographically unlimited access through remote network access – through a Web connection, users worldwide can access and update their financial information from any location, at any time without having to install any other software on their device. In fact, this is the reason why cloud computing could be considered a form of ‘ubiquitous computing’.
- Increased performance through enhanced business agility and flexibility – a high-speed Internet connection and the use of mobile technology enable fast data transfer and real-time interaction. Consequently, it allows organizations to react to continuously changing business conditions.
- Unlimited data storage, processing capacity and automatic backup for the customer’s data. It also allows client companies to effortlessly add or remove capacity, depending on its needs and without other expenses.
- There are no upgrade fees because the service is continuous and the client is always using the latest version of the software and having access to the most up to date features.
- User-friendly, thus making accounting language and features, easy to understand and use. It also helps accountants to generate real-time financial reports while allowing them to concentrate on analyzing data and ensuring insights on financial aspects [10].
- Enables companies to share their financial information with their clients in real-time, accordingly creating improved communication and collaboration [11].

3.2. Possible issues regarding cloud accounting

Like any other solution, cloud accounting might have to face some challenges according to different end-users, each having their own point of view. When referring to potential flaws that could occur, the most common concern is related to security and protection of the client’s financial data from unauthorized access, information theft or computer hacking [12].

There are certain aspects that should be considered when addressing security issues:

- Generally, the security level of the service is scaled depending on the customer's demands. Besides, the external CSP could actually ensure the necessary expertise to provide an even higher level of security than the one that would normally be purchased by the client company for their internal PC and therefore making the system more reliable and secure.
- The requirements of ISO 27011 must be met, because it is the International Standard for Data Security. CSP must follow particular security standards if they want to prove they are trustworthy. This way, their business will expand and they will avoid the risk of a bad reputation.
- Broadly speaking, CSPs perform automatic back-ups for the customer's financial data, aspect that might sometimes be neglected by a company when having this responsibility on-site.

Many companies are concerned about the privacy of their sensitive data that might seem to be vulnerable when entrusted to a third party. Of course, there is also the risk that the CSP would access or monitor financial information of clients. The loss of control over data is another problem for companies that become dependent on the cloud provider, especially if the service quality and availability is not fully guaranteed by contract. The interruption of the Internet connection can also affect the customer that is forced to suspend his activity. However, such risks are not obstacles impossible to overcome [13] and might actually challenge cloud providers to improve the quality and features of their services.

4. Aspects to consider when adopting Cloud Accounting

Cloud accounting adoption becomes widespread because it is revolutionizing the way financial and accounting departments work for businesses. According to a study developed by the CAI in the first quarter of 2013, the rate of growth in cloud adoptions continues to accelerate, registering a dramatic increase of over 43% from 2012 to 2013 [14]. On the other hand, the percentage of non-adopters seems fixed and is likely to remain so. On-premise and cloud solutions will continue to co-exist, but the in-house model has certainly lost its dominance, even in the 'novelty-resistant' accounting field.

Each business structure is unique and thus, must carefully evaluate its specific facts and circumstances, (including the terms of the contract and the use of the service). Entities should even consider consulting a qualified professional adviser to assist them in determining the appropriate accounting solution.

4.1. Technical aspects

Because the cloud accounting market provides a large variety of solutions, future adopters must establish which system or tool would best meet the company's objectives. The most important step that enterprises should take when choosing the suitable cloud accounting service is to thoroughly analyse the business's specific characteristics. The right cloud solution will surely improve the company's adaptability to the market and enhance its competitiveness.

Just like any other system migration, there are a number of essential aspects to study when transitioning to a cloud-based solution. Such features might include: data quality and storage, specific information demands and the best timing for the transfer. Also, before committing to a new accounting solution, companies must consider the complexity of their financial reporting needs [15] and of course, always prepare for the future. The new accounting solution must fully integrate with other relevant business systems and be able to develop and accommodate to changing conditions for the business.

In addition to basic bookkeeping, each accounting service has its own set of solutions so adopters should also have in mind to closely review each option. When selecting the right cloud vendor companies should choose one that is secure, adaptable, experienced in their domain and receptive to the company's needs.

The company's size is in fact, another considerable criterion when deciding what form of cloud solution would best match the business profile. The economic landscape can virtually be divided into four main segments, correspondingly addressing different types of cloud accounting solutions. Entry Level solutions are the least expensive and are generally addressed to very small economic entities. The level of functionality and the number of features are likewise minimum. The Middle Market comprises small to medium enterprises and finally, there are the major enterprises that are typically multinational organisations.

4.2. Pricing and Financial Aspects

When it comes to the costs involved by the accounting solution, the following expenses should be considered: the cost of implementation, customization and staff training, and of course, the monthly or annual maintenance fee.

In the traditional accounting model, companies buy the right to own the hardware, which is often a straightforward, single transaction with a specific price. When using accounting software, entities pay for the right to use different applications or licenses, which is also based on list prices. The cloud accounting solution gives customers the possibility to use the necessary technology and software resources, similar to the offering of any other service. For such a model, CSPs will likely present a variety of pricing plans depending on a set of variables that typically establish how the services are consumed.

Therefore, businesses should also pay attention to the pricing and the costs that come along with the new accounting solution [16]. Companies must understand that all the benefits and opportunities granted by cloud accounting have a certain price which might be in some cases, even higher than the current accounting solution. So, it is advisable to properly evaluate each alternative and determine whether an on-line or an in-house solution is preferable for the business.

5. Conclusions

Through a theoretical approach, this paper presents the state of the art for the “cloud accounting” concept by including information from both accounting and IT fields. This phenomenon is still in a process of metamorphosis and many companies have not even heard about this solution. Because it is such a new notion, and because it is located at the border of accounting and information technology, the article resumes the information available on this subject and brings forward a comprehensive point of view regarding the meaning, benefits and potential risks involved. In addition, we analyzed the most relevant links to this topic and established a framework that companies should take into account (when considering to adopt a cloud accounting solution).

If we consider the possible limitations of this study, we should mention the fact that the “*cloud accounting*” concept is still in an incipient state for many organizations. In the meanwhile, for a small number of companies this is an actual tool used to leverage their business strategy and create real benefits. This is why we emphasize the importance of this “resource” and promote an extended research on this theme.

This paper does not intend to depict an exhaustive study, nor does it analyze the subject from an empirical point of view. Also, the information on this topic, comprised by the accounting literature, is generally insufficient or very poor (mostly because it is a new subject in this domain).

We encourage the development of future studies on cloud accounting, not just theoretical, but also empirical, in order to find out the real value of this solution. What will the future bring is essentially dependent on the peoples’ understanding and acceptance of these technologies (even in other fields, not only in IT). As the world’s famous writer and thinker Spencer Johnson once said, “*the only constant is change itself*”.

When referring to the accounting domain, we could say that, for a very long period of time, innovation has been going forward with small steps. However, in the last few years, the progress of certain ideas has once again determined a change in the traditional accounting paradigm. Simultaneous developments in social media and collaborative tools, the spread of inexpensive, but scalable infrastructure provide worldwide access to IT resources. Significant improvements in communication technology and the explosive rise of mobile devices are other factors that induced change.

Yet, the most outstanding concept, that has reshaped the traditional way of providing accounting tools, is cloud computing. The world of bookkeeping is shifting towards online products. The numerous benefits of the cloud services have proven that a technological revolution is undoubtedly necessary for companies’ accounting department. The new manner of designing, managing and providing financial packages introduces accounting in the “cloud computing era”. Benefits of using a cloud accounting solution are considerable and enterprises should do their best to explore all opportunities and learn from the continuously changing market. Moving to the Cloud is inevitable for most businesses – in many cases the only question that arises is ‘When?’.

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