

Cloud Accounting In Romania. A Literature Review

Maria Cristina Boşoteanu

cristina.bosoteanu@gmail.com

University of Craiova, Romania

Fast evolution of information technologies in recent years radically changed organizational processes and systems architecture. One of these technologies, developed since 2006, is cloud computing. This allowed a party virtualization of the system of organization, including some components of the accounting information system. Thus it emerged and was operationalized at the organizational level, cloud accounting (software). The objective of this article is a literature review on the cloud accounting in Romania. In terms of methodological research involves identifying relevant articles related to this topic, published by Romanian authors in 2011-2016, and analysis to highlight perspectives for implementation of cloud accounting in Romanian organizations.

Keywords: cloud computing, accounting process, cloud accounting

JEL Code: M15, M41, O14

1. Introduction

Globalization and extremely rapid technological developments, in the last 20-25 years, have completely changed the architecture and organizational processes. Technological developments have made their mark, obviously, on accounting too.

The development of mobile technologies has led to high expectations (and pressure) from an interested public on the professionals in the field, on the possibility of tapping anywhere, anytime, quickly, on any device, information and financial statements related to organizational activities they are involved and on the need to take certain decisions.

In this context, based on cloud computing technology, has developed cloud accounting that is now spreading in organizations, with different speed, from one country to another, depending on a number of technological, economic and socio-cultural determinants.

In this article we intend to study how the Romanian specialists address the issues of cloud accounting. For a good structuring of the study we identified and watched five sub-themes: the definition of "cloud accounting"; significant differences between traditional and cloud accounting bookkeeping; benefits an organization can have by implementing cloud accounting technology; the main risks and challenges that can lift this technology in an organization; current situation and prospects of using cloud technologies in Romania (particularly in financial accounting).

2. Methods

A systematic review of the literature requires a comprehensive search, much more objective, not influenced by favorite concerns of the researcher who realized. To achieve this objective, to identify relevant articles circumscribed our theme we proceeded to a search through Google Scholar. The search was conducted after the keyword "cloud" and "accounting" and typing the string "cloud accounting". The search was limited to the past 5 years, considering that we are dealing with a relatively new concept with an extraordinary development in recent 5 years. Also were considered only articles written in Romanian or English, by Romanian authors.

In Table 1 we presented a summary situation of the studied articles, divided by years. To manage items extracted according search criteria was used the Citation and Bibliography Tool - Zotero.

Table 1

Year	2011	2012	2013	2014	2015	2016
Studied articles (corresponding number of bibliography)	17	14, 15, 18	11	6, 8, 13, 20	1, 2, 3, 4, 5, 7, 9, 12, 16, 19	21

3. Results

3.1. Defining the concept of "cloud accounting"

Mihalache (2011) defines cloud accounting as "a modern concept in computer processing of accounting data based on the concept of Cloud Computing, which represents a set of distributed computing services, applications, access to information and data storage without the user having to know the physical location and configuration of systems providing these services".

Ionescu et al. (2012) make the following comments on the definition of "cloud accounting" concept: "If we add to e-accounting an Internet connection and a subscription to a virtual accounting service, we achieve a cloud accounting service." (the same definition we found at Mihai et al., 2012).

Dimitriu and Matei (2014a), although highlights that we cannot talk yet about the official definition (emanating from a recognized profession advance) for "cloud accounting," notes that: "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 (Cloud Service Provider)'s servers. Basically, it provides accounting services by means of cloud computing solutions."

Tugui and Gheorghe (2014) define cloud accounting as "an accounting software product which can be accessed anytime and from any place with an Internet connection, and which does not require previous installation or management or its own servers" (rediscovered without further nuances at Mihai, 2015, respectively at Cernuşcă & Balaciu, 2015).

Dimitriu and Matei (2015) consider cloud accounting as a business model. If the accounting software was a product for traditional accounting, it is a service for cloud accounting. Through the proposed solutions, cloud accounting help modernize the business environment. A second argument supporting the idea that cloud accounting is a new business model is the fact that provides to the users relevant and updated information (up to date), so necessary for managerial decisions in a very volatile economic environment. It is an essential difference between the post-factual information provided by the traditional accounting.

In our view this approach is hazardous. The business model may be defined by a very general manner (IIRC, 2013): "The organization's chosen system of inputs, business activities, outputs and outcomes that aims to create value over the short, medium and long term." Cloud accounting can be a component of a business model in any case a business model itself.

Dimitriu and Matei (2015b) introduce alternative names for cloud accounting: "online accounting"; "Web-based accounting", "real-time accounting", "cloud financials." The two authors propose a definition of the concept: "an innovative tool designed to assist accounting professionals."

In our view, in the definition still persist a number of uncertainties and confusions. We believe it is very limiting to define "cloud accounting" as a software product and too much to consider it a business model. We advance the idea that perhaps it would be fairer and would support and define more clearly, to talk about "accounting in cloud computing." It means so it's not just a change of technology, but also about paradigm and mentality changes.

3.2 Traditional vs. cloud accounting

Ionescu et al. (2013) addresses the issue of differentiation between traditional accounting and cloud accounting, but only in terms of specific software. Unlike traditional accounting software support, cloud accounting software are not owned by the organization, but involves hardware and maintenance included costs, unlimited number of users.

Dimitriu and Matthew (2014b) believe that 21st century's accounting should adopt paradigm of cloud computing technology. Cloud Accounting can be regarded as a disruptive alternative to traditional accounting. "Revolution" cannot produce by itself; it requires changes in mentality and

courage for pursuing and implementing a vision. Otherwise, like any revolution, instead of turning into a path of growth and progress, can become an unfortunate event.

Țugui and George (2014) makes the following research hypothesis: "There are premises that the new level of digital accounting known as cloud accounting, through its special characteristics, will implicitly lead to the changing role of accounting, in terms of cloud computing." After processing a questionnaire answered by 125 professional accountants, the two authors have found that the hypothesis is valid.

Fotache and Păvăloaia (2015) share accounting evolution into five periods (1850-1900, 1900-1950, 1950-1990, 1990-2000, 2000-2015), each period being characterized also through the way in which information technologies have provided support accounting profession. Analysis of the period 2000-2015 reveals that professional accountants in Romania must strengthen IT skills to cope with changes in the field, in order to adapt to the new requirements of the profession imposed internationally, to grow professionally.

Bendovschi (2015), quoting literature, speaks of three stages in the evolution of any software for accounting: 90s - the first appearance of accounting software, limited to basic accounting operations; 2000s - the concepts of "integration" and SaaS (software as a service) which allowed more complex accounting operations; after 2010 – era "mobile accounting". These technological changes (and also economic crisis which started in 2008) caused a mutation in the objectives of accounting from registration of economic operations, preparation and presentation of financial statements to business intelligence and more recently, to accounting intelligence.

Țugui and Gheorghe (2016) points out a distinction in terms of human resources involved: "running in virtual transactions can even lead to the disappearance of traditional professional and replacing him with an expert in the handling of data, information and accounting knowledge."

In our opinion the differences between traditional accounting and bookkeeping system via cloud computing are much deeper than those related to information technology, which are supported by. It is, as pointed out some of the authors of the review, a change of role and objectives for accounting for a change in key skills required of professionals in the field (which implies, consequently, a change in the education specific to the domain).

3.3. Benefits of implementing cloud accounting

Mihalache (2011) believes that the most important benefits of implementing cloud accounting are: using an external data centre, virtual, where these applications are stored makes the purchase of additional hardware and software, special ones, no longer necessary; flexibility; automatic upgrades; the possibility that through these technologies accounting professionals to respond faster to problems / requests more complex (coming from the management).

In correlation to the questions raised by us, Mihalache (2012) talks about virtualisation the accounting information system infrastructure (AISI). AISI virtualization benefits are: reduction of administrative costs and with infrastructure of IT&C; flexibility; reducing human resources costs involved in technical assistance; reducing non-operative time; increase employee productivity.

Ionescu et al. (2013) after consulting an extensive literature summarizes six advantages of using cloud accounting: security adaptability; eased management; compliance; global access; trial period.

Dimitriu and Matei (2014) identifies the following advantages of using cloud accounting: cost reduction; access to financial information without geographical limitations; increase organizational performance through business agility and flexibility; capacitive / unlimited storage, processing and automatic data backup; lack of upgrade fees; improving communication and collaboration between users of financial information.

Ionescu et al. (2014) details the following advantages of cloud accounting: automation of data collection and processing; accountant-client relationship improvement; elimination of duplicate information, preventing errors and increasing data accuracy; security access control and authorization.

Scheau (2015), between the same coordinates, talks about: real-time access to information; back-up services reduce the risk of loss / damage information; improving collaboration and financial communications, including social interaction between accounting / accounting department and customers / other departments (this second part is an underscore to which we subscribe, despite usually considers social interactions are affected by the use of new information technologies); elimination of duplicate information.

Brandaș et al. (2015) conducted a SWOT analysis of the use of mobile and cloud technologies on the accounting informational system. Among the strengths are listed: scalability, cost reduction, collaborative environment (with customers, employees), global approach, data backup recovery.

Ionescu et al. (2015) considers that the main catalysts for migration accounting function to the cloud are the opportunity to reduce costs and downtime related to specific activities.

Also the same parameters, Dimitriu and Matei (2015) emphasizes that the use of cloud accounting community can lead to a reduction of costs at the organizational level (due to lower investment spending is not necessary to purchase licenses for hardware and software, but also maintenance expenses, primarily by reducing hardware) and productivity growth (driven by users 24/7 access, the possibility of accessing information via multiple device sites, even simultaneously, a better allocation of resources).

Compared to the benefits identified in the previous article, the same authors (Dimitriu and Matthew, 2015b) added ease to use and intuitive design and usability of trial versions, which can assist in identifying the most suitable solutions for each organization before a long term commitment.

We note, regarding this sub-theme, the existence of a convergence of views of different authors, around several elements: cost reduction, flexibility, increased productivity, better communication.

3.4. Challenges and risks on the implementation of cloud accounting

To implement the cloud accounting has to be noticed that not only the technical issues are important. It is necessary to reconfigure the way it is conceived higher education (in universities) in accounting field (Ionescu et al., 2012 makes several references to these issues).

Ionescu et al. (2013) summarizes, driving a significant literature, the following risks on the implementation of cloud accounting technologies in an organization: security based reticence; poor internet connection; loss of control; dependency.

Dimitriu and Matei (2014a) identifies as the main risk of using cloud accounting the security and protection of customer financial information, susceptible to unauthorized access.

On the same lines, Scheau (2015) speaks of unauthorized access as the main threat to use cloud technology in the financial and weigh the material advantages resulting from the use of new technologies, with reputational risks and potentially financial losses resulting from unauthorized access, recommending a prudential conduct to introduction of new technologies.

Brandaş et al. (2015) examines the following challenges and security risks for accounting information system under the impact of using cloud technologies: financial and accounting data loss; system availability and business continuity; legal and regulatory concerns; intellectual property theft; patch management; disaster recovery and backup procedures; permanent supervision and security administration.

Ionescu et al. (2015) points some additional items. First widespread use of these technologies at the organizational level implies a strong, stable connection to the internet. Added to this is the need for an organizational reengineering of processes, specific training requirements for a large part of the staff, including team management, time and resources to implement organizational changes.

Dimitriu and Matei (2015) repeat, as potential risks for the implementation of cloud accounting, security problems and those caused by connection and internet speed. The two authors emphasize, however, which in our opinion could be an important barrier to implementing cloud accounting (especially if we consider the Romanian context), skepticism of the professional accountants on this model, due to fear of change or misunderstanding of what involves and which are the benefits.

And on the risks involved implementing cloud accounting technologies are mentioned, almost in unison, with security issue and, respectively, related to the quality of the internet connection.

We think are minimized in importance and insufficiently analyzed issues related to resistance to change that, unless properly managed, with tact, may jeopardize the implementation of new technologies within an organization.

3.5. Highlights on prospects for implementing cloud accounting in Romania

Mihai et al. (2012) considers that the implementation of new IT technologies in accounting would involve a renewal of generations in the accounting profession, but this does not seem easily achievable in Romania. Although many young people graduate university degree in accounting, they are not very keen to develop a career in this field, it is not a first option for them.

Mihai (2015), regarding cloud computing, namely the adaptation of these technologies in accounting, concludes that, in Romania, "theory abounds, while practice is almost inexistent". The author believes that on the market software applications that enable cloud accounting software is a lower offer and inadequate to the demand, reflecting a certain immaturity, underdevelopment of this market.

Bendovschi and Ionescu (2015) emphasizes that, according to EUROSTAT results of 2014, Romania is placed among the last European countries in terms of using cloud computing technology in companies (less than 10%). In this context the efforts of organizations, associations or public institutions to engage in various activities on raising the general level of knowledge of cloud computing is necessary and welcome, including for implementing cloud accounting.

Finally remember the study of Țugui and Gheorghe (2016). The main hypothesis of their research, split into three secondary hypotheses, was that "in the current level of development of the digital economy in Romania, accessing accounting documents raises serious issues consisting of absence and / or the inability to obtain data, lack / restricting access to the dates of accounting information systems, low level of consistency and reliability of accounting data." Following an exploratory research authors found that their secondary assumptions are validated and hence, the main assumption. From this fact, they consider that "digital economy in Romania is at an early stage" (they support this claim making reference to Eurostat data, 2014).

In our opinion, in Romania, is much to be done to implement the cloud accounting, on multiple levels, priority in our view is the technical one (generalization of cloud computing in the corporate Romanian) and socio-cultural (changing the perception of mature generations of professional accountants on the usefulness of new information technologies that can be supported by various professional bodies and reconfiguration of academic curricula regarding accounting study programs, in line with the new basic skills required for such a professional).

4. Conclusions

In our analysis we identified 20 articles written by Romanian authors circumscribed to the theme "cloud accounting". Articles are certainly the most relevant in the online environment (accessible in prestigious databases). There may be published important works on paper addressing this issue. Our study was not about identification of these works too.

Referring to the 20 papers analyzed systematically in our material we find that there are several authors who have many articles, probably specializing in this issue: A.C. Bendovschi, O. Dimitriu, Matthew M., B. Ionescu, C. Prichici, A.S. Mihalache, A. Țugui. The result of this is obviously some redundant ideas.

All selected articles on the authors find that, with few exceptions, are not (yet) prominent figures of the scientific world in Romania. Sure, it does not impair the quality of materials, but on the "echo" / impacts including practical level.

By studying selected materials I found that, as regards the definition of "cloud accounting" it is far from rigorous set, which is not surprising as long as not even on the level of international professional bodies that have concerns about this issue has not reached a consensus.

In terms of benefits and risks of using cloud accounting technologies analyzes are, in our view, largely superficial, schematic, rather by analogy with cloud computing, without customization, without an analysis of the socio-human implication of change.

Romanian context analysis is also quite shallow, carried out at diagnosis, remained without trying to identify the causes and possible concrete solutions. In these circumstances we believe that, also in theory level, of literature, many things are still insufficiently addressed. Theorists by foreshadowing certain solutions can inspire and catalyze and practical developments.

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