Table of Contents

Figures

Tables

Appendix

1 Introduction

This chapter includes a short background of the topic where the importance of knowledge management is presented. The chapter continues with a problem discussion regarding the adoption and implementation of knowledge management cloud based solutions in small enterprises, leading to the purpose and the research question that the study addresses. Finally, I present the delimitations followed by the basic definitions of the main concepts used.

1.1 Background

The fast development of information and communications technologies (ICT) has pushed enterprises into the information age, meaning that they accumulate more and more data and have reached a point where they own enormous amounts of data, but with poor knowledge drawn from the data. In order to tackle these problems and make full use of their data, enterprises need to translate data into information and then information into knowledge.

Nowadays, it is widely accepted by researchers and organizations that knowledge and the creation of ideas are critical resources for the success of a company. Knowledge and the management of knowledge are important to any organization as they create new opportunities for gaining competitive advantage, improving performance or produce successful innovations (Lee & Lan, 2011). Organizations own large amounts of knowledge that is located in databases, documents or work procedures, organizational routines, processes, practice and norms as well as being held by the employees (Gharakhani & Mousakhani, 2012; Doris et. al., 2011).

Managing knowledge has emerged from the need to increase sales, enhance work practices and decision making, shorten the development time of the products/services, empower the employees or improve customer services and relations (Dotsika & Keith, 2013). Other contributions of the knowledge management capability may include: improved innovation process, better anticipation of surprises, reduced redundancy of information, improved coordination of efforts, and rapid commercialization of new products, but also the ability to become more responsive to the market changes (Gold et. al., 2001; Burke, 2011).

Implementing knowledge management into organizations requires a wide range of technologies such as expert systems, artificial intelligence and knowledge base management systems (KBMS), decision support systems (DSS), knowledge management systems (KMS), relational and object oriented databases, data mining or document management (Barclay & Murray, 2000; Valaei & Aziz, 2011). Altogether, knowledge management does not require only an infrastructure that can support the development and maintenance of knowledge archives, but also an organizational environment that enables the creation and facilitation of knowledge sharing and dynamic learning (Purcarea et. al., 2013). Furthermore, enterprises need to develop and encourage knowledge networks that are interactive and allow individuals to access the same information and simultaneously collaborate throughout the entire network (Alavi & Leidner, 2001).

While knowledge management (KM) has been an established practice in large and multinational enterprises, which dominate in KM implementation and initiatives, it has not been the same case for small and medium sized enterprises (SME) (Dotsika & Keith, 2013; Massa & Testa, 2011).

SMEs, which often make great efforts to survive on their markets, have experienced difficulties in implementing KM practices due to resource and budget constraints, inadequate awareness among

managers, insufficient technical expertise and the fact that they fail to realize and recognize the potential benefits of KM. This has led to a certain ambiguity and uncertainty of adopting and implementing KM (Dotsika & Keith, 2013; Lee & Lan, 2011; Burke, 2011). On the contrary, researchers have argued that adopting KM initiatives in SMEs is crucial, as knowledge is their single key resource (Dotsika & Keith, 2013; Lin, 2014; Wee & Chua, 2013). Burke (2011) further suggests that SMEs need to increase their efficiency with what is already available both inside and outside the organization, which is information that later on needs to be translated into knowledge.

Altogether, currently when companies have to deal more and more with globalization of markets, competition, high levels of customer service, disruptive changes in technology, and the continuous need for cost reduction and innovation, KM is cited in the literature as one of the ingredients of success, especially for smaller enterprises (Massa & Testa, 2011; Della Corte et. al., 2013).

1.2 Problem

KM is a crucial and inevitable practice for small enterprises that want to survive in the current dynamic business environment. Despite evidence that it improves performance and competitive advantage, the implementation of KM in small companies is quite often seen as difficult due to the above mentioned constraints.

Dotsika & Keith (2013) argue that knowledge management systems (KMS) can be expensive to adopt, deploy, maintain and support and they usually mirror the processes and practices adopted by large enterprises which are focused on predetermined workflows. Moreover, prior research suggests that practices successfully adopted in large organizations do not scale down well and are unlikely to be generalizable to smaller ones (Dotsika & Keith, 2013; Soto - Acosta et. al., 2014; Palacios-Marqués et. al., 2015; Chong et. al., 2011). Small enterprises are different from large organizations not only in size but also in structure, management practices, performance measurement, the formality in the application of management controls, skills, market power, resources or technological maturity (Coyte et. al., 2012).

In addition smaller enterprises are, for the most part, not interested in investments that do not lead to immediate effects (Burke, 2011). Thereby, they require efficient solutions which are cheap, flexible and simple (Grabova et. al., 2010).

Meanwhile, the pervasiveness of information and communications technologies (ICT), the reduction of communication costs and the advent of cloud computing are likely to provide new solutions to all of these problems by introducing less costly and more flexible ways to implement KM practices.

Cloud computing has recently been introduced as a solution suitable for managing knowledge in SMEs as an enabler to incorporate new technologies, increase the speed of implementation or develop process innovation at lower cost as they only have to pay for the resources that they use (Trigueros-Preciado et. al., 2013). As cloud computing does not require maintaining of hardware, software or dealing with security issues, SMEs can consider cloud a good return on investment for their limited resources and this can help them focus on what really delivers value to their customers (Alshamaila et. al., 2013).

Moreover, cloud computing can grant global access to any capacity and cloud service without human interaction, which in turn will allow companies to access files and data "*anytime, on any device, at*

any connection and from any place at a reasonable and affordable price", through internet (Kloch et. al., 2011, page 17).

Despite the fact that cloud computing and its promising benefits – especially for SME and startups – are subjects of extensive discussion in the literature - there is yet little research regarding the adoption of cloud computing technologies for KM in small companies.

1.3 Purpose

The purpose of this master thesis is to identify the key drivers that might facilitate or inhibit small enterprises towards using cloud based KM and to understand the reasons behind their decision to choose this type of solution.

As already mentioned, cloud computing adoption by small enterprises is subject of extensive research, but cloud computing can be used for many different purposes. In this paper the particular case of managing organizational knowledge by using the cloud will be addressed. This means analyzing the reasons for creating, storing, sharing and using knowledge in the cloud by small companies.

This research would fill a gap in the theoretical field where the benefits of adopting cloud computing solutions by small enterprises have been evident, but where there is little research regarding the viability of adoption and implementation of cloud-based KM in small enterprises.

This dissertation attempts to provide suitable guidelines that can help practitioners decide whether KM in the cloud is a viable way forward for small companies but also help them to develop better strategies for cloud based KM adoption projects.

1.4 Research question

This study aims to provide interesting managerial implications by answering the following research question:

- **What are the main factors influencing the adoption of a KM cloud-based solution in small enterprises?**

1.5 Delimitations

The aim of this study is to investigate the primary strategic issues of adopting KM cloud-based solutions in small organizations thus is not focusing on the technical features of cloud computing and knowledge management systems (KMS). Even though deploying KM in the cloud is dependent on information and communication technologies, I will take them as a given and will not investigate architectural requirements of KMS and cloud computing in specific.

As for geographical limitations, I have selected Romania for performing the study due to lower cultural barriers and language barriers in performing the empirical data collection.

1.6 Definitions

Data, information and knowledge

"*Data is facts and raw numbers; information is processed/interpreted data and knowledge is personalized information*" (Alavi & Leidner, 2001, p.111).

Knowledge management

Knowledge management represents the processes and practices aimed at assisting an organization to identify, select, organize and share important information, expertise and experience in order to support problem solving, strategic planning, decision making and dynamic learning (Burke, 2011).

Knowledge management systems

Knowledge management systems are regarded in this paper as configurations of technological, organizational and managerial tools that are designed to support KM activities (Massa & Testa, 2011).

Cloud computing

"*Cloud computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction*" (Mell & Grance, 2011, p.2).

Web 2.0

The term Web 2.0 describes a second generation of internet, created to make a diference between traditional static Web sites and interactive knowledge creation platforms. Here users are supposed to extract from and contribute to the knowledge databases simultaneously (Soto – Acosta et. al., 2014).

2 Theoretical background

In this chapter, I present the results of the literature review, which I performed in order to describe the main concepts presented in the paper. Reviewing the relevant literature helped linking the research into an existing body of knowledge and provided an initial theoretical framework.

2.1 Small enterprises

Micro, small and medium-sized enterprises are defined in various ways in different parts of the world. From a European perspective, a micro enterprise employs fewer than 10 persons and has an annual turnover or balance sheet total lower that 2 million euro. A small enterprise employs fewer than 50 persons and has an annual turnover and/or annual balance sheet total that does not exceed 10 million euro. Small and medium-sized enterprises (SMEs) on the other hand include the category of micro and small but also medium-sized enterprises, which employ fewer than 250 persons and the annual turnover does not exceed 50 million euro and/or the annual balance sheet total does not exceed 43 million euro (EU Commission, 2003).

Table 2-1 Micro, Small and medium-sized enterprises

Company category	Employees	Turnover	or	Balance sheet total
Medium - sized	< 250	≤ € 50 m		≤ 43 m
Small	< 50	≤ € 10 m		≤ 10 m
Micro	< 10	≤ € 2m		≤ 2 m

This paper is focusing mainly on small enterprises, but in order to grasp a full understanding of the topic and to accomplish the purpose of this paper, I considered literature regarding both small enterprises and SMEs, which also includes micro and medium sized enterprises.

Small enterprises differ from large, multinational ones in size and practices around a broad range of managerial activities. Gharakhani & Mousakhani (2012) argue that is important to acknowledge these different characteristics of small enterprises as they are likely to influence all activities in the life-cycle of knowledge management.

Wong and Aspinwall (2004) compiled a list of small businesses characteristics that are directly connected to the design and implementation of KM activities. These are categorized as ownership and management, structure, culture and behavior, systems, processes and procedures, human resources and customers and market.

Ownership and management

Smaller firms are less hierarchical and have fewer levels of bureaucracy with a free-floating management style that encourages entrepreneurship and innovation. The control is often centralized and the

decision making chain is shorter, thus likely to be based on the owner's personal supervision. This centrality means that the owner-managers themselves must recognize the importance and potential of KM related benefits (Wong & Aspinwall, 2004; Daft, 2007).

Structure

Small enterprises have a flat, less complex and flexible structure. When it comes to implementing KM, this structure allows a faster communication of KM issues within the organization, as the owner-managers can disperse their plans in a timelier manner. One of the disadvantages however can be connected to the low degree of specialization of employees in their job. In smaller organizations, employees tend to be more generalist and need to perform a variety of tasks. This may lead to insufficient expertise in implementing KM (Wong & Aspinwall, 2004; Daft, 2007).

Culture and behavior

Smaller companies have a different organizational culture, which is more organic and fluid than of larger corporations. In essence, a unified culture, where employees are more tied to commonly shared values and beliefs can provide small firms with an easier way to achieve cultural change, such as implementing KM. A disadvantage may be that culture of small enterprises is easily shaped and affected by the personality and perspective of the owner-managers (Wong & Aspinwall, 2004).

Systems, processes and procedures

Small companies mostly have simple systems since their operations are smaller in scale and less complicated than of larger companies; therefore they are more adaptable when it comes to implementing new initiatives. Most of their activities, operations and procedures are less formal and standardized, which may inhibit the implementation of a formal KM system. Employees may be hesitant to capture, store and share their knowledge formally and this lack of formal procedures may hinder the efficient functioning of a KM system, even though it has been implemented (Wong & Aspinwall, 2004).

Human resources

Evidently **s**maller companies have fewer employees, which brings the advantage of getting them together faster to initiate a change. Also the collaboration and intimacy of the employees is usually better, making it easier to set up a KM initiative (Wong & Aspinwall, 2004).

2.2 Context

In order to understand the context of this study, the Romanian industry will be briefly described, based on the 2014 Small Business Act for Europe (SBA) fact sheet, regarding Romanian SMEs and industry. The study was conducted by the DG Enterprise and Industry for the EU Commission. The SBA Fact Sheets are produced as part of the SME Performance Review, which is the main vehicle for economic analysis of SME issues.

2.2.1 Romanian industry

Romania's economy is dominated by SMEs and has proportionally more small firms compared to the European Union as a whole. The impact of small firms on the economy is higher than the EU

average, providing nearly 23% of the private sector employment and 16% economic added value (as shown in the table below).

Table 2-2 Basic figures concerning SMEs in Romania

	No. of enterprises			Number of employees			Value added		
	Romania		EU-28	Romania		EU-28	Romania		EU-28
	No.	%	%	No.	%	%	Billion Euros	%	%
Micro	373 944	87.4%	92.4%	931 091	22.9%	29.1%	7	13.4%	21.6%
Small	44 682	10.4%	6.4%	929 499	22.9%	20.6%	9	16.3%	18.2%
Medium	7 669	1.8%	1.0%	848 216	20.9%	17.2%	10	19.7%	18.3%
SMEs	426 295	99.7%	99.8%	2 708 806	66.7%	66.9%	26	49.4%	58.1%
Large	1 455	0.3%	0.2%	1 349 456	33.3%	33.1%	26	50.6%	41.9%
Total	427 750	100%	100%	4 058 262	100%	100%	52	100%	100%

These are estimates for 2013 produced by DW Econ, based on 2008 – 11 figures from the structural Business Statistics Database (Eurostat). The data cover the business economy, which includes industry, construction, trade, and services (NACE Rev. 2 sections B to J, L, M and N) but no enterprises in agriculture, forestry and fisheries and the largely non – market service sectors such as education and health. The advantage of using Eurostat data is that the statistics are harmonized and comparable across countries. The disadvantage is that for some countries the data may be different from those published by national authorities.

The above table shows the number of enterprises, employees and the value added by the Romanian companies which are categorized by their size. The numbers are compared to all of the others EU - 28 countries' average.

The distribution of SMEs by sectors is comparable to the average European Union distribution, most of them pertaining to the wholesale and retail trade, manufacturing and construction industries.

Romania's Small Business Act profile

The Small Business Act for Europe (SBA) report shows that Romania performs above average only in entrepreneurship. This is connected to the large number of business start-ups and a positive entrepreneurial culture, where entrepreneurs are admired and possess a high social statute. However, the main obstacles to the business sector's competitiveness are the lack of innovation and a shortage of specialized skilled labor (as shown in the radar chart below).

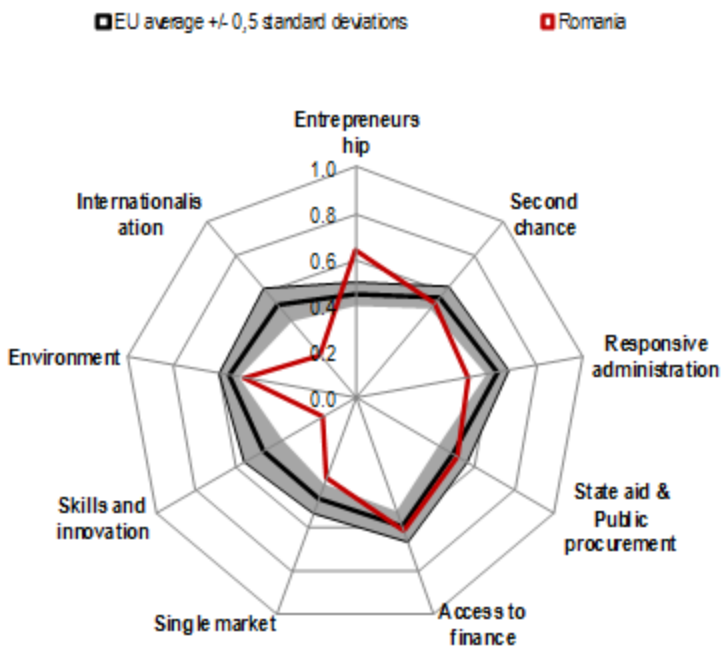

Figure 2-1 Romania's SBA profile.

The above radar chart shows Romanian SMEs' performance according to the SBA's indicators (used to monitor SMEs performance in Europe) as compared to the average EU – 28 performances.

According to the EU report, every core innovation indicator is below the EU average. Romanian small companies are generally less likely to introduce innovations in products and processes, to collaborate or to innovate in-house. There is a loose connection between research, innovation and industry, in particular regarding research and development activities. Also, Romanian small firms perform below the average in IT – readiness (ability to sell and make purchases online) and have poor administrative capacity that continues to slow down the growth of business.

Romania has an efficiency-driven economy as compared to the innovation – driven economy of most Member States, with a high number of business startups but with fewer established efficient businesses (SBA Fact Sheet – Romania, 2014).

2.3 Knowledge management in small enterprises

According to Alavi and Leidner (2001) knowledge is information captured and processed in the mind of individuals about their environments, related to facts, procedures, concepts, interpretations, ideas, observations and judgments; it can be regarded as a justified personal belief that improves an individual's ability to take action more effectively. Apart from individual/personal knowledge, Nonaka (1994) also distinguishes the collective/social knowledge which is created by and inherent in the collective actions of a group.

There are two dimensions of knowledge: tacit and explicit. *Tacit knowledge* or unarticulated knowledge resides in the minds of individuals and is related to a person's personal knowledge and skills, gained from years of experience, and therefore difficult to bring into a structure, access or imitate. *Explicit*

knowledge on the other hand is articulated, codified knowledge that can be stored and shared with others (Alavi & Leidner, 2001; Nonaka, 2004). Compared to tacit knowledge, explicit knowledge can be captured and distributed easily due to its ability to be codified in the form of words or numbers (Stevens et al., 2010).

Taking into consideration the two dimensions of knowledge, knowledge management is primarily about transforming tacit knowledge into explicit knowledge. Ruiz-Jimenez & Fuentes-Fuentes (2013) argue that knowledge originates in people and from an organizational standpoint, what is most relevant is that is shared and integrated into the firm and among all members of the firm.

In small organizations there is a tendency to gather knowledge in a tacit form. Very often the knowledge is retained in the minds of the owner and few key employees, rather than being physically stored or shared in a formalized manner. Wong and Aspinwall, 2004 state that documenting knowledge helps a company to build an organizational knowledge base, which all the employees can access, but also reduce loss of knowledge, which can occur due to retirement or departures of valuable employees.

Altogether, organizations of all sizes realized that in order to be successful they must view knowledge as an asset and manage it effectively in order gain from resources that are intangible. Studies revealed that the effective management of knowledge can help a company to improve performance and drive innovation (Gharakhani & Mousakhani, 2012; Durst & Edvardsson, 2012), create sustainable competitive advantage (Lee & Lan, 2011; Gharakhani & Mousakhani), facilitate collaboration, (Valaei & Aziz, 2011), improve work quality, organizational efficiency, decision making, customer satisfaction, reduce redundancy, respond rapidly to change, reduced risks from the loss of critical knowledge and become better coordinated in efforts (Gold et al., 2001).

2.3.1 Knowledge management processes

Knowledge management presumes certain processes for acquiring explicit and tacit knowledge and convert tacit into explicit knowledge. There are four prominent knowledge processes found in the knowledge management literature: creation/acquisition, storage, sharing and use.

1. *Knowledge creation and/or acquisition* refer to the processes by which knowledge is obtained and involves creating new knowledge or replacing existing one, within the organization's tacit and explicit knowledge (Alavi & Leidner, 2001).

2. *Knowledge storage* is the process of structuring and storing knowledge in order to make it more formalized and accessible to its users (Massa & Tessa, 2011).

3. *Knowledge sharing* is the process of sharing, disseminating and distributing explicit and tacit knowledge within the organization (Massa & Tessa, 2011). The sharing of knowledge is facilitated by personal or virtual networks, in other words, formal and informal channels, in order to facilitate its application (Gharakhani & Mousakhani, 2012). Informal channels are beneficial when exchanging ideas, but formal channels have the advantage of being more systematic (Zahra & George, 2002). Traditionally, the creation and transfer of knowledge has happened by using various methods like face-to-face communications, staff development, counseling or job rotation (Gunadham, 2015)

4. *Knowledge use* refers to the utilization and use of knowledge in order to build organizational capability and value within the organization (Gharakhani & Mousakhani, 2012).

2.3.2 Knowledge management systems (KMS)

The four knowledge management processes are assisted by knowledge management systems (KMS), used in order to better create and use knowledge in the organization. There are two common views of KMS based on perceptions of knowledge as an object and knowledge as "socially constructed" (i.e. embedded in people).

The first approach is the most used in the literature and is based on the idea that KMSs are information systems designed to support knowledge management activities of knowledge creation, codification, storage/retrieval, transfer and application (Alavi and Leidner, 2001).

The second approach associates KMS with connectivity and functions that help and facilitate collaboration between employees, thus the KMS goal is to create a connected environment for knowledge exchange (Baaloh, 2007).

In this thesis, both views will be taken into consideration, and KMS will be defined as "*configurations of technological, organizational and managerial choices",* designed to support KM activities (Corso et. al., 2006, p. 440). In other words, KMS are "*systems composed of people, tools and technologies, and knowledge that interact to provide knowledge to people in the organization*" (Gallupe, 2001, p. 6).

In most large organizations, KMSs are implemented through a formal approach (Coyte et. al., 2013). KM is considered 'formal' when is deliberate and systematic, usually supported by information and communication technology (ICT) systems (Hutchison and Quintas, 2008). 'Informal' indicate practices used to manage knowledge, but which are not necessarily using the specific language or terminology of KM. According to Nunes et al. (2006), in smaller companies the management of knowledge tends to happen in a more informal way "*rarely supported by purposely designed ICT systems"* (Nunes et. al., 2006, p. 116-117). Often SMEs do not have the necessary resources for formal ICT processes, but they still have many different methods to capture and share knowledge within the organization (Coyte et. al., 2012).

By now, enterprises have long acknowledged the necessity and importance of knowledge management and it is said to be an established practice in large, multinational organizations. Studies have shown though, that knowledge management is of great importance to smaller companies as well and that KM promises SMEs the same benefits experienced by large organizations. Dotsika and Keith (2013) go further and argue that implementing KM in SMEs is crucial, as "*knowledge is their single key resource*", thus smaller companies should take advantage of this resource that they already have (Dotsika & Keith, 2013, p.368). For SMEs especially, knowledge can be a determinant of the company's survival and one of the sources of sustainable competitive advantage (Gharakhani & Mousakhani, 2012).

Unfortunately, many SMEs have failed to realize KM's importance and potential benefits and have no formal policy addressing strategic KM. Some of the reasons why these companies have experienced difficulties in implementing KM are in literature attributed to resource and budget constraints, inadequate awareness among managers, insufficient technical expertise or ambiguity and uncertainty of adopting and implementing KM (Dotsika & Keith, 2013; Lee & Lan, 2011; Burke, 2011).

2.4 Cloud computing in small enterprises

2.4.1 Cloud computing

The term "cloud", is used nowadays like a metaphor for the Internet and was presumably inspired by illustrations from IT text books that often represented remote environments, especially the Internet, as cloud images (Sultan, 2011).

Cloud computing has been defined in many ways by researchers but the most widely accepted and repeated definition in the literature is the one by Mell & Grance (2011), from the National Institute of Standards and Technology (NIST), which indicates that "*Cloud computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction*" (Mell & Grance, 2011, p.2). In other words, it is an IT service model where both hardware and software computing services are delivered on-demand to customers by a cloud supplier, over a network and can be accessed anytime, anywhere, on any device and at any connection. Cloud computing can also be regarded as a new business model that can reduce IT barriers to innovation. For example Facebook, Twitter, Gmail or YouTube are personal global online applications made possible by the cloud computing concept (Marston et. al., 2011).

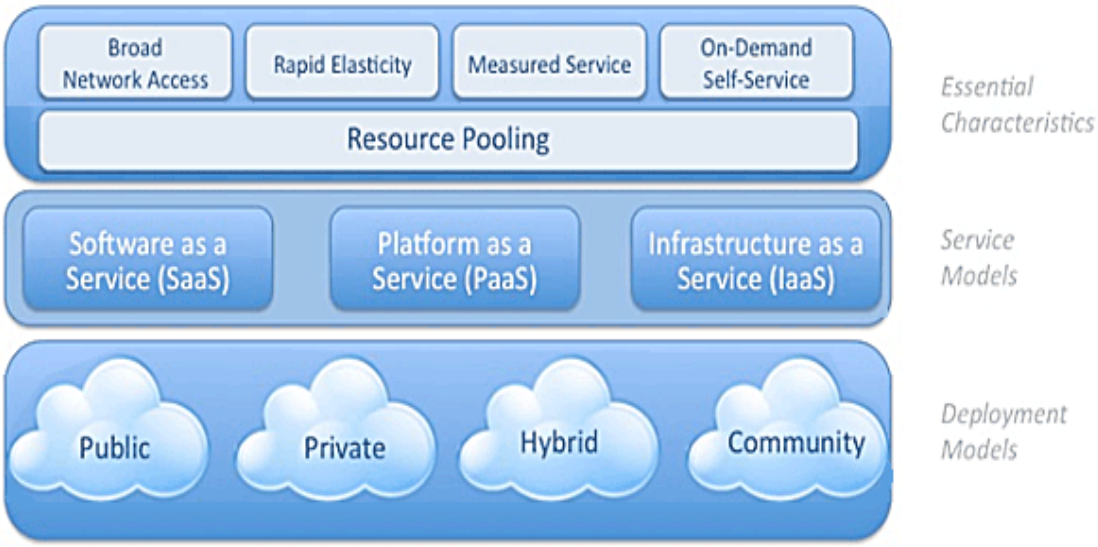

Figure 2-2 Visual Model of NIST Working Definition of Cloud Computing.

According to NIST definition cloud computing has five essential characteristics:

- *On demand self-service* – refers to the possibility of accessing computing capabilities as needed, without requiring human interaction with the service providers.

- *Broad network access* – capabilities are available over the network and can be accessed by a number of devices, such as mobile phones, tablets, laptops and so on.

- *Resource pooling* – refers to the fact that the provider's computing resources are pooled to serve various customers using a multi-tenant model.

- *Rapid elasticity* – means that capabilities can be elastically provisioned and released proportionate with the demand, giving the customers a notion of unlimited resources on-demand.

- *Measured service* – means that cloud systems can automatically control, monitor, report and optimize resources, granting transparency for both providers and consumers of the utilized service.

Cloud computing is typically categorized by either its service or deployment models (Mell & Grance, 2011). There are three common service models, being applicable in different manners in which cloud computing capabilities are delivered to customers:

- *Infrastructure as a Service* or IaaS – is a model that offers the remote delivery via Internet of a full computer infrastructure like virtual computers, servers, storage devices etc.

- *Software as a Service or SaaS* – is a model which offers the customer the possibility to use the provider's applications running on a cloud infrastructure.

- *Platform as a Service or PaaS* - platform services lie between infrastructure and software and provide middleware, including platforms and tools to build cloud – hosted applications, without the need to manage the underlying structure (hardware and software).

Mell and Grance (2011) further present four different cloud computing deployment models.

- *Private cloud* – the cloud infrastructure is own or rented by a single organization for its private use. A private cloud can also be handled by a third party provider. It offers a better control over the cloud infrastructure and is suitable for companies that do not want to store sensitive data in public cloud facilities.

- *Public cloud* – offers cloud infrastructure for open use by the general public. It may be owned by an external provider like a business, academic or government organizations that provide their services to the general public (an example of public cloud could be Google Apps).

- *Community cloud* – the cloud infrastructure is provided for a specific community of consumers, hence the resources are shared between members of a closed group who have the same needs.

- *Hybrid cloud* – is a combination between private, community or public cloud. This combination of two or more cloud infrastructures is bound together by standardized or proprietary technology in order to enable data and application portability (Mell & Grance, 2011).

2.4.2 Key drivers of cloud computing adoption by small enterprises

Generally speaking, the main drivers of cloud computing have been associated with economics or simplification of software delivery and operation. The benefits of cloud computing are numerous, especially for smaller companies, as they have the opportunity to reduce some of the traditional disadvantages faced in comparison to larger firms. The most prominent key drivers of cloud adoption by SMEs encountered in the literature are described below:

Cost reduction

Cloud computing can contribute to a significant cost reduction, as the enterprise does not need to make large initial investments in computing resources and maintenance as it only needs to pay for the computing resources and services it uses. This represents an opportunity for smaller enterprises as they can benefit from compute-intensive business analytics available only to larger companies in the past (Ghaffary et. al., 2014).

Scalability/On demand structure

Another benefit of the cloud that can drive smaller enterprises towards adoption is the scalability/on demand structure, as the cloud can make it easier for SMEs to scale their services up or down according to their demand (Ghaffary et. al., 2014).

Accessibility and flexibility

Cloud computing provides quick accessibility and flexibility as resources can be set up in very short time and companies can manage their entire IT resources through a simple web based interface that allows for ubiquitous access from multiple devices (Ghaffary et. al., 2014).

Innovation

The cloud is argued to have a significant role in encouraging entrepreneurship and innovation. By using the cloud effectively, SMEs can convey innovative services quicker, thus they can compete with anyone, anytime, anywhere and of any size (Ghaffary et. al., 2014; Sahandi et. al., 2013).

Access to better resources

Migration to the cloud can offer better resource utilization and grant access to a large pool of computing services that could not be accessed with traditional on-premise models (Ghaffary et. al., 2014; Trigueros Preciado et. al., 2013).

International orientation

Cloud technologies boost the SME's ability to take advantage of business opportunities across national borders and penetrate global markets, as cloud technologies are not limited by geography (Ross & Blumenstein, 2015).

2.4.3 Barriers to the adoption of the cloud by small enterprises

Despite the advantages presented above, small enterprises should also be aware of the related risks and vulnerabilities before adopting cloud-based services for sensitive information. The main reasons for not considering cloud services by SMS mostly prevalent in the literature are:

Data security and privacy

These are two of the most indicated barriers for implementing cloud by SMEs. Security includes data loss, phishing, cyber-attacks etc. (Trigueros Preciado et. al., 2013) but is also connected to the insecurity of using a service that is relatively new (Ghaffary et. al., 2014). In terms of privacy, the customer of cloud has to comply with the law requirements regarding privacy, access, protection and data location, therefore has to make sure that the cloud provider complies. This is not always an easy job as there is usually some ambiguity about the accurate place of data and the level of its privacy, and also a lack of standardization and regulation in different parts of the world (Ghaffary et. al., 2014; Sahandi et. al., 2013).

Availability and quality of service

For enterprises using the cloud it is important that the services are always available and with adequate quality (Trigueros Preciado et. al., 2013).

Data lock-in

Data lock-in refers to the lack of interoperability between different cloud providers, which makes it difficult for customers to change from one provider to another (Trigueros Preciado et. al., 2013).

The control loss of the data

Data ownership issues make it difficult to transfer data to another cloud vendor. SMEs, which usually have little bargaining power with large cloud providers, will generally have to accept the terms and conditions offered by the Service Level Agreements (SLAs) (Trigueros Preciado et. al., 2013).

Connectivity and open access

Sahandi et. al. (2013) argues that the full realization of cloud computing is dependent on the availability of high-speed access for all employees.

In conclusion, cloud computing has numerous benefits as well as drawbacks. Researchers suggest that adopting cloud-based services may be particularly suitable for SMEs (Ghaffary et. al., 2014; Sultan, 2011; Sahandi et. al., 2013). The cloud can play a major role to the growth and competitiveness of such organizations and can help them lower the amount of complexity, reduce costs and strengthen organizational agility in various areas and KM is no exception (Kochut, 2011; Sahandi et. al., 2013).

2.5 Previous research on Knowledge management cloud-based solutions

Cloud computing technology can be used for different purposes like big data analysis, disaster recovery, backup, e-commerce, test and development or virtual organizations to mention a few of them. In this paper the focus is not on cloud computing services in general, but on the particular case of knowledge management deployed in the cloud. This presumes using the cloud to create, store, share and use knowledge within an organization. Keeping in mind the technological and economic benefits of the cloud, presented in the previous section, the question that arises in this context is weather deploying KM in the cloud could bring the same advantages and if it can be a meaningful solution for small organizations. There are few research studies performed in cloud-based knowledge management, and most of them approach the subject in a general manner and talk about

new architecture requirements of KMS. Other studies on knowledge management and cloud computing are connected to distance learning, customer support, business intelligence, content management or collaborative knowledge networks for medical service industry. Even though these studies provide essential information about the subject, they are just instances in the general picture of cloud-based knowledge management area.

In this study, I evaluate the reasons for small companies to adopt or not cloud KM, which I define as "creating, storing, sharing and using knowledge by employing an IT service model where hardware and software computing services are delivered on-demand, over a network, being able to be accessed anytime, anywhere, on any device and at any connection."

In the process of reviewing literature concerning knowledge management cloud-based solutions, a total of eleven resources have been found, among which eight represent peer-reviewed articles and three represent articles written for KMWorld Magazine, an online magazine serving the knowledge management, content management, and document management markets. Insights on purpose and concepts found in the reviewed articles are aummarized in Appendix 2.

Knowledge in the cloud is a relatively new concept formulated by Cerri et al. (2008), which proposes this new vision by extending the idea of "data in the cloud". The authors suggest that "*knowledge in the form of semantic data is becoming more and more ubiquitous and the need for scalable, dynamic systems to support collaborative work with such distributed and heterogeneous knowledge arises"* (Cerri et. al., 2008, p.1*)*. Moreover, the authors introduce the approaches to be taken in order to realize the "knowledge in the cloud" vision and two application scenarios, which are connected to life science and emergency response.

Delic and Riley (2009) propose the idea of combining cloud computing with enterprise knowledge management (EKM) and project the possible emergence of "enterprise knowledge clouds" (EKC). In their vision, they describe EKC as "*a collaborative, cooperating, competing mega-structure providing computing, networking and storage services to various knowledge producers and consumers – being devices, people and applications*" (Delic & Riley, 2009, p. 49). The EKM system is divided into four components: infrastructure, applications, content and users. The infrastructure is made up of data centers that host computing, storage and network resources being part of a cloud computing setup. The article mention EKM users, which need different type of skills than contemporary users.

Liao et. al. (2011) develop a conceptual framework of KMS architecture for KM application by using cloud computing technology. They argue that cloud computing is a significant alternative to the application of KM. Moreover, cloud computing can help firms reduce the cost of organizational KMS (by removing hardware costs, software license costs and maintenance costs), in order to preserve an IT environment for KM.

In the article "Toward Knowledge Management as a Service in Cloud-Based Environments" (Khoshnevis & Rabeifar, 2012), a cloud-based architecture for KM is introduced, namely KMaaS (Knowledge-Management-as-a-service) and its application scenarios. The authors argue that in a cloud environment the main objective is to provide "everything as a service" (XaaS), including knowledge as a service (KaaS) and knowledge management as a service (KMaaS). KMaaS is defined here as a SaaS where knowledge management services are provided by KMaaS service providers to KMaaS service consumers. The difference between KaaS and KMaaS is that KaaS provides facilities only on knowledge itself, while KMaaS provides also management services, thus KaaS is part of KMaaS. Also, the authors discuss the ways cloud computing services and deployment models can be

used in the knowledge management area, and also introduce an extensive list of mandatory and optional services that KMaaS should implement. Finally, the authors conclude that cloud computing can benefit KM from two aspects: It can help keep it aligned with new technologies and can provide a great infrastructure for gathering and redistributing knowledge.

Sultan (2013) examines the impact of cloud computing and web 2.0 on organizational knowledge and argues that cloud computing and online social networking are emerging as valuable tools for helping organizations in their KM efforts. The author further suggests that, in the past, implementing KM was hindered by technological, organizational,financial and behavioral aspects (behavioral aspects referring to the fact that employees thought that is too time consuming or were not prepared or willing to share important information). Nowadays, cloud computing can take care of KM's technical and financial constraints and online social networking is considered a powerful tool that can help address the behavioral problems. Moreover, the article explains that cloud-based KMS represents a great opportunity, especially for SMEs that can take advantage of a domain normally reserved for large and resourceful organizations.

In the article "Adoption of Cloud based Knowledge Management" (Sadeghzadeh et. al., 2014), providing knowledge management services has been presented from two perspectives: SaaS (Software-as-a-Service) and KaaS (Knowledge-as-a-Service). KaaS is presented as a service "*used to access specific and necessary knowledge at any time from any location*" (Sadeghzadeh et. al., 2014, p.326). By utilizing this service organizations will not need to employ expert personnel, thus reducing the risks originating from human error. The article also presents a cloud KM framework, based on which four perspectives (relative risks, advantages, and company and environment specifications) were used to explain the adoption of cloud-based knowledge management. The article proposes a good insight of cloud KM benefits and its adoption, however very little detail is provided.

Rafiq et. al. (2015) discuss about how cloud computing has impacted the way knowledge is managed and IT services are provisioned. They also talk about the SME, which can now use hosted services for major IT activities (including KM) through cloud computing. The authors present a survey of the research work that has been done in the application of cloud computing to the improvement of KMS in the last five years and conclude that major contributions have been done to the domain of cloud KMS but affirm that these latest trends are the current development and the businesses are already benefiting from this practice.

Gounadham (2015) talks about cloud storage application in terms of facilitating KM and documents major functions of cloud storage application by comparing features in different categories. In the end the author suggets that in order to improve the facilitation of knowledge acquisition, distribution or sharing, and knowledge development, cloud storage application needs to include several extended functions.

Based on the reviewed literature regarding cloud KM, it can be concluded that important contributions have been made to the use of cloud computing to the domain of knowledge management, although, some of the concepts presented in this thesis have been only theoretical claims. However, this emerging concept is gaining more and more popularity and cloud vendors seem to already be taking advantage of the KM trend, which represents a new commercial opportunity for them.

2.6 Defining adoption

In this investigation adoption refers to the acceptance and continued use of an idea, product or service. In terms of technology, adoption can be defined as "*introduction and use of Information and Communication Technologies (ICT) including computer hardware, software and networks"* that are new to the adopting person or organization and can provide future adopters with new ways of solving problems and exploit opportunities (Tan et al., 2009, p. 226). The adoption process can refer to the individual or organizational level. Individual adoption process is a simple event, users adopt or not, while organizational adoption is a more complex process that spreads out over time (Fichman, 1992).

2.7 Adoption: A theoretical framework

To determine the main factors that are influencing the adoption of cloud KM solutions in small enterprises, a theoretical framework was chosen in order to guide the research.

At individual level, the main theories used in technology adoption studies are the technology adoption model (TAM) (Davis, 1986), theory of planned behavior (TPB) (Ajzen, 1985), unified theory of acceptance and use of technology (UTAUT) (Venkatesh et. al., 2003), theory of reasoned action (TRA) (Fishbein &Ajzen, 1975) (Oliveira & Martins, 2011; Venkatesh et. al., 2003).

At organizational level, the main theories used in adoption studies are diffusion of innovation theory (DOI) (Rogers, 1995) and the Technology-Organization-Environment framework (TOE) (Tornatzky & Fleischer, 1990).

DOI theory is an approach that investigates how a new technology diffuses. This theory proposes two categories of factors that may influence a company's adoption of innovations; innovation characteristics and organizational characteristics (Hsu et. al., 2014). The TOE framework is consistent with the DOI theory, and besides looking at technological and organizational contexts, it also considers the environmental one.

In this study, the determinants of cloud KM adoption will be examined based on the TOE framework. The reason for using this framework is that there might be companies with existing knowledge management practices, and deciding whether to adopt cloud computing or not is connected to organizations decision to either invest and develop own resources or make changes based on consideration of the environmental situation.

The TOE framework was introduced by Tornatzky and Fleischer (1990) and is one of the main theoretical frameworks used to investigate factors affecting the adoption and use of different technologies. As mentioned earlier, in the TOE framework, the adoption process is influenced by three aspects of a firm's context: technology, organization and environment.

For studying the adoption of new technologies (in connection to knowledge management and cloud computing), multiple variations of the TOE framework have been used in the literature. In this thesis, I have chosen a model adopted by Low et. al. (2011) as it represents a simplified version, with factors that I considered fit with the context and timeframe of this study. The research model can be seen in Figure 2-3 and each of its determinants will be explained further in the text.

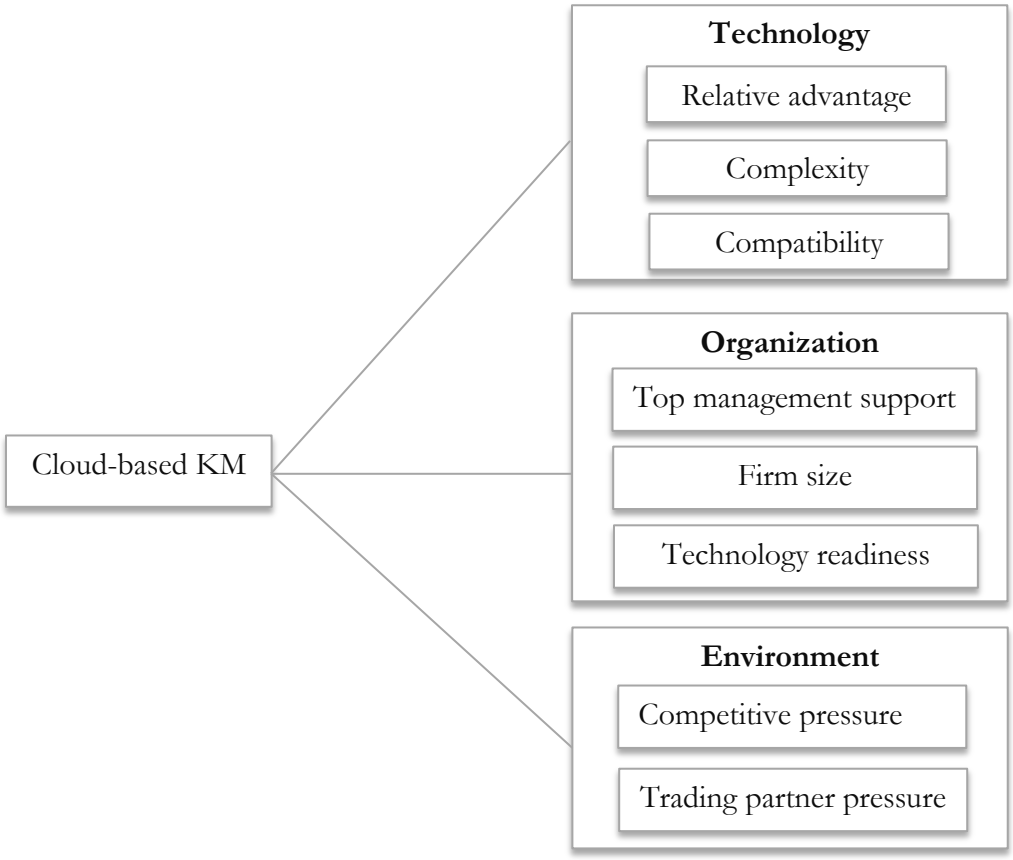

Figure 2-3 TOE framework model.

Technology context

The technological context describes the characteristics of the technological innovation that are likely to influence the adoption decision such as relative advantage, complexity and compatibility.

Relative advantage refers to the degree to which a technological factor is perceived as beneficial to the company (Low et. al., 2011).

Complexity refers to "*the degree to which an innovation is perceived as relatively difficult to understand and use*" (Rogers, 2003, p. 257).

Compatibility refers to "*the degree to which an innovation is perceived as consistent with the existing values, past experiences, and needs of potential adopters*" (Rogers, 2003, p. 240).

Organizational context

The organizational context describes the characteristics of the organization that are likely to influence the adoption process such as top management support, firm size, technology readiness.

*Top management suppor*t is deemed to be important for providing the resources needed to adopt a new technology (Low et. al., 2011).

Firm size is also considered to have impact on technology adoption (Low et. al., 2011).

Technology readiness refers to the existing infrastructure of companies and the ability of the IT human resources to understand and adopt a new technology (Low et. al., 2011).

Environmental context

The environmental context involves characteristics of the environment in which the organization performs such as competitive pressure and trading partner pressure.

Competitive pressure refers the level of pressure felt by the firm from competitors from the same industry (Oliveira & Martins, 2010).

Trading partner pressure refers to the level of pressure felt by the firm from collaborators. (Low et. al., 2011).

2.7.1 Research model

Based on the TOE framework, I have created an assessment tool, as shown in Figure 2-4 that will be used to conduct the cloud KM adoption study in small enterprises.

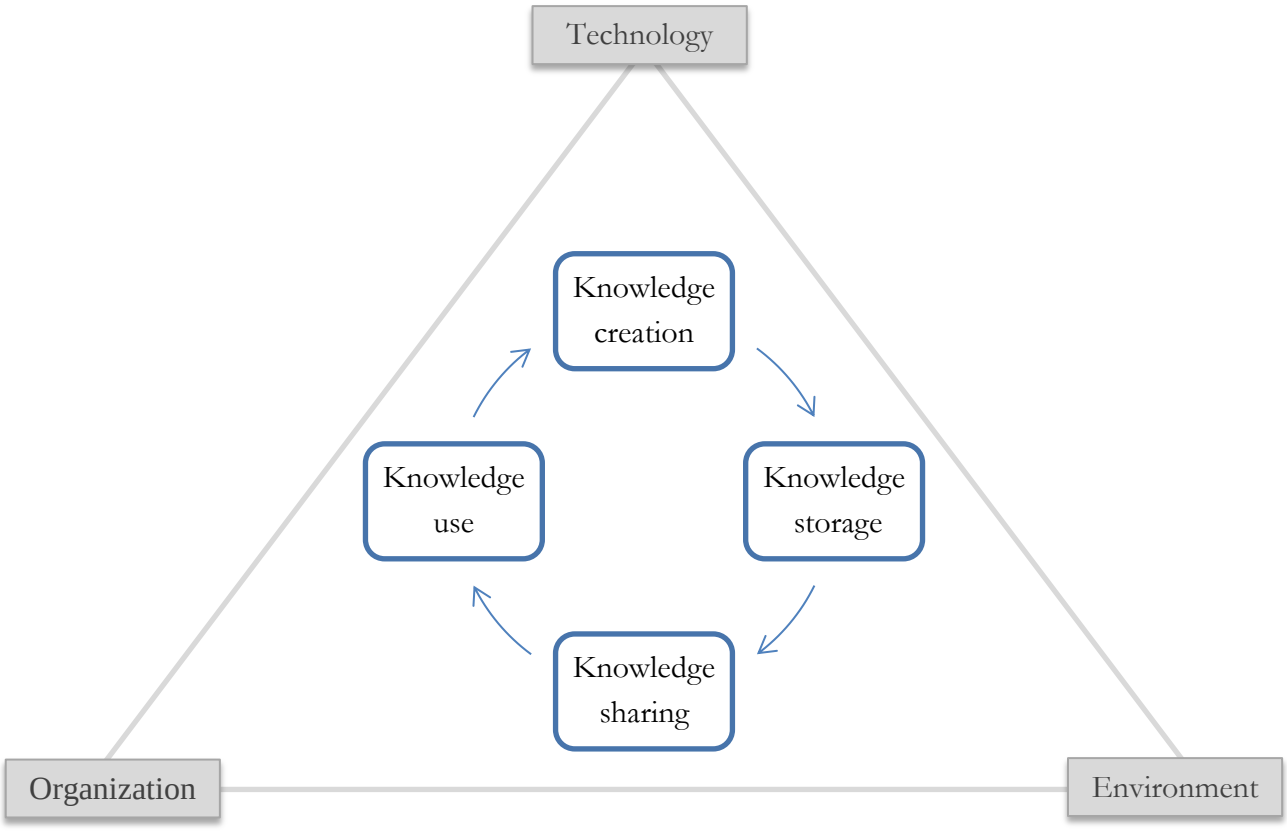

Figure 2-4 Research model.

This model suggests that adopting the knowledge management processes of creating, storing, sharing and using knowledge in the cloud are influenced by organizational, technological and environmental factors. This model will be used as a research instrument, on which the interview will be based.

3 Research methodology

This chapter provides an overview of the methodological approach and the research design selected for this study. In this context, the methodology proposed in the following points was considered the more appropriate to understand the reasons for knowledge management cloud solutions adoption by small companies. Moreover, the chapter presents motivations for the chosen methods and describes the processes of analysis and the applied research instruments in more detail.

3.1 Research structure

In this section I present the general structure that I will follow in order to answer the research question and meet the study's objective.

Approach - Inductive

This study follows an inductive reasoning approach, i.e. it does not try to test a theory or hypothesis (deductive reasoning) but instead it can be associated with theory building, where data is collected and theory is developed based on the results of the data analysis. This type of reasoning allows for a more close understanding of the research context (Saunders et. al., 2009).

Saunders et. al. (2009) further argues that when a subject is relatively new or there is little existing literature, it is proper to work inductively and reflect upon what theoretical constructs the data are suggesting.

Method - Qualitative

There are three research approaches that can be used to study a topic: quantitative, qualitative and mixed methods. *Quantitative* research is an approach applied for data that can be measured, used for testing objective theories by examining the relationship between and among variables. When using this type of approach, the researcher develops hypotheses and tests theories, being able to generalize and replicate the findings. In contrast, *qualitative* research is more concerned with data that cannot be measured and it is used for exploring and understanding a certain situation, where the researcher has to make interpretations of the meaning of the data. *Mixed methods* research involves gathering both quantitative and qualitative data, using distinct designs (Creswell, 2014).

In order to answer the research question "What are the main factors that influence the adoption of a KM cloud-based solution in small enterprises?" a qualitative research approach was chosen. The aim of this study is to identify the key drivers that might facilitate or inhibit the adoption of cloud computing for managing knowledge and understand what are the reasons behind adopting such solutions by small enterprises. The study will fill a gap in the theoretical field regarding the viability of implementing KM in the cloud in small enterprises, therefore there is a need for an in-depth understanding of the decision making process by enterprises. Based on Creswell (2014), qualitative research can be useful when a concept needs to be understood because there is little research about it.

Purpose – Exploratory

As explained by Saunders et. al. (2009), the purpose of a research study can be exploratory, descriptive or explanatory. *Exploratory* research is usually conducted to explore a topic, which is new or has

not been clearly defined. *Descriptive* research is performed in order to describe situations and phenomena. It means that there is no need to clarify the problem because it has already been defined. An *explanatory* study is carried out in order to find and explain causal relationships between variables (Saunders et. al., 2009).

The purpose of this study is exploratory, as it tries to explore the adoption of cloud KM by identifying the key factors that influence the adoption process in small enterprises.

Strategy - Semi - structured interview

In regard to the qualitative research design of this study, Creswell (2014) presents four data collection methods; interviews, observations, documents and audio/visual materials. *Interviews* usually involve a face to face conversation with the participants. A qualitative *observation* happens when the researcher takes a passive role by only observing a phenomenon. Qualitative *documents* refer to collecting documents such as newspapers, meetings minutes, official reports, letters, e-mails etc. Gathering *audio and visual materials* involves data that may be gathered from photographs, videos, social media, art objects or any forms of visual and sound.

In this study the data collection method that will be used is the interview. The method was imposed by the nature of the research question and by the need to grasp the thoughts, perspectives and views of the interviewees regarding the reasons for choosing or not choosing a KM cloud-based solution for the enterprise.

Saunders et. al. (2009) distinguishes between (1) structured, (2) semi-structured and (3) unstructured interviews.

Structured interviews can be seen as interviewer administered questionnaires based on a predetermined and standardized set of questions where the researcher needs to ask the questions in the same order and adopt the same consistent behavior when interviewing each participant. In *Semi-structured* interviews the researcher has prepared a list of topics and questions that have to be covered but they might vary from interview to interview and some questions can be omitted or added judging by specific contexts. The *unstructured* interviews are more informal and are used to explore an areac in depth. There is no specific or predetermined set of questions and the interviewee is given the opportunity to talk freely about a certain topic area (Saunders et. al., 2009).

In this study, semi-structured interviews will be used as it can allow for a less formal interview by interacting with participants and asking the questions depending on the context and direction of the conversation.

Sampling - convenience

The sampling frame represents the list of all units in a population from which the sample will be selected. The sampling frame in this study can be defined as all small businesses from Romania.

Sampling represents the method of choosing participants that will be involved in a study. According to Saunders (2009) there are two types of sampling techniques: probabilistic and non-probabilistic. The probabilistic sampling technique gives the possibility to estimate statistically the characteristics of the population from the sample. The non-probabilistic sampling gives the possibility to generalize about a population but not on statistical grounds.

In order to choose the participants for this study, I used the non-probabilistic sampling technique, convenience sampling. This method involves selecting participants to the study depending on availability or accessibility. Convenience sampling was chosen because of the time constraints required to carry out the research and the accessibility of the chosen sample.

After having identified potential companies for the interviews (mainly by internet search, private recommendations and personal experiences), I contacted them by email, inviting them to participate in the interview and providing them with a short description of the thesis subject and purpose. A total number of four companies replied favorably and accepted to participate in the research. The four companies belong to manufacturing, advertising, consultancy, and IT sector. In consequence, four companies from four different sectors were chosen to represent small businesses in Romania.

Time horizons - Cross sectional

A topic can be studied at a particular point in time (cross-sectional) or it can be the representation of events over a given period in order to study change and development over time (longitudinal) (Saunders et. al., 2009).

This thesis will follow a cross-sectional time horizon by studying a particular phenomenon at a particular time. Cross-sectional studies are common for projects performed for academic courses, due to the time constraints involved (Saunders et. al., 2009).

Techniques - Data analysis

The data analysis in this qualitative study will consist of analyzing the text obtained from the interviews through conceptualization. The analysis of text consists in finding important themes, patterns and relations that will help reaching a conclusion and answer the research question. The answers from the interviews were summarized and structured in a logical sequence in order to ease the analytical process.

The analysis of prior research on similar topics provided a theoretical framework (TOE) that will be used as an orienting means to guide the interviews, but without trying to impose pre-existing expectations (Patton, 2002). Structuring the data collection in this way will also help to organize and direct the data analysis.

This method combines some elements of deductive approach as I developed a theoretical position followed by testing its applicability through subsequent data collection and analysis. Saunders et. al. (2009) argues that even though an inductive approach is incorporated in a research, starting the work from a theoretical perspective has its advantages. For example, it will link the research into an existing body of knowledge and help the researcher get started but also provide him/her with an initial analytical framework.

3.2 Industry selection

The representative sample was not limited to a specific industry, following the idea that every company must have in place some kind of knowledge management, being it formal or informal (see section 2.3.2), in order to operate in the current business environment. Succeeding this rationale, it

was also not important if companies used cloud computing or not for managing knowledge, as it was presumed that both situations would give information on reasons.

I acknowledge that in companies pertaining to high knowledge intensive sectors, the management of knowledge is assumed to be more critical and requires an increased use of information technology (IT), but the purpose of this study was not to analyze the level of use of KM and cloud, but to explore reasons and perceptions of small companies. The only requirement for choosing the companies was the number of employees, which needed to be below 50.

3.3 Data collection

3.3.1 Primary data

The primary data collection represents the raw data collected with a purpose in mind done by the researchers themselves. In this study, the primary data collection was performed by interviewing four small companies from Romania. The four semi-structured interviews were conducted in person at the interviewees' offices.

A research instrument (Appendix 2) that contains questions guidelines was used for the semi – structured interviews. The questions were divided into four main themes: background, organizational, technological and environmental. The background theme contains detailed questions about the company and the use of knowledge management and cloud computing. Organizational, technological and environmental themes contain questions referring to the specific determinants of technology adoption found in TOE framework, but also questions aimed at finding out other determinants and reasons for the adoption decision. The questions regarding the determinants of the adoption decision were only useful in the case where the company adopted cloud computing to manage its knowledge. The questions were mainly open-ended, giving the opportunity to interviewees to provide developmental answers and reply as they wished. Also, consideration was given to the way questions were phrased, so they did not lead to a specific answer. However, the interview guideline served only as an orientation and boundary for the discussion. The main goal of the interviews was to let the interviewees speak freely about their thoughts and opinions regarding using cloud technology for managing their knowledge.

Prior the interview, all participants were asked permission to use the company's name and if the interview could be recorded. Interviews were recorded using a mobile phone and transcribed in order to facilitate the analysis.

3.3.2 Secondary data

The secondary data collection method focus on data that has already been produced by other researchers. In this case, the secondary data was collected by performing a review of previous literature. According to Webster & Watson (2002), reviewing previous relevant literature is essential for any academic project as it creates a foundation for advancing knowledge.

The main source for locating relevant materials for the review was The Jonkoping University's Library system called "Primo", a system with access to multiple online databases.

The search for relevant academic resources was done by using the following descriptive keywords: knowledge management + small enterprise (firm, organization, business, company), knowledge management + SME, KM + small enterprise (firm, organization, business, company), KM + SME, knowledge management system, KMS, cloud computing + small enterprise (firm, organization, business, company), cloud computing + SME, knowledge management + cloud, KM + cloud, knowledge management + cloud + small enterprise (firm, organization, business, company), KM + cloud + small enterprise (firm, organization, business, company), technology adoption.

The research concerned only articles written in English. Due to the increased interest in cloud computing and knowledge management and the high volume of literature regarding these two subjects but also the fast development of technology, only recent resources, written between 2010 and 2015, have been considered. Furthermore, from these resources' reference list, additional ones deemed important were chosen. The next step after finding all items was to read the abstracts and keep only the ones that matched the thesis purpose. Table 3-1 presents the number of shortlisted articles reviewed and the number of articles selected and used in the thesis.

Table 3-1 Overview of the reviewed literature

Keywords	Knowledge management in small enterprises	Cloud computing in small enterprises	Knowledge management systems	Technology adoption	Knowledge management in the cloud	Total
Shortlisted	50	21	31	14	12	**128**
Selected	29	16	3	5	8	**62**

The credibility of resources was taken into consideration, choosing mainly journal articles and conference proceedings. Books were used only in the methodology part. The databases from which the articles were extracted were: ABI/Inform, ACM Digital Library, Business Source Premier, Emerald, INFORMS Journals, Science Direct and Springer Link.

4 Results

This chapter presents the results of the data collection together with more details about the companies and the observations made during interviews. The interviews were translated from the Romanian language into English and summarized, with a focus on the most important points and the purpose of the study.

4.1 Introduction

The four participants (interviewees) were deemed appropriate sources of information for the purpose of this study, all of them being involved in the decision making process in the companies they work for (interviews were held with three General Managers and a CEO). Table 4-1 contains details about the interviewed companies, including name, number of employees, industry description, turnover and the length of the interview.

Table 4-1 Company details

	Company name	No. of employees	Industry description based on NACE* code	Turnover (2013)	Length of interview
C1	B2B Digital	11	Wholesale of computers, computer peripheral equipment and software	~ 1 577 621 EUR	25 min
C2	MS Masini pentru Fabricarea Mobilei	13	Activities of head offices; management consultancy activities	~ 1 360 285 EUR	20 min
C3	Amco advertising	16	Advertising agency activities	~ 708 529 EUR	20 min
C4	60 Pd Eisenmarkt	10	Agents involved in the sale of a variety of goods (in the manufacturing industry)	~ 375 598 EUR	15 min

*NACE code represents a statistical classification of economic activities in the European Community by assigning a unique 5 or 6 digit code in order to groups organizations according to their business activities.

4.2 Interview with company C1

B2B Digital is a Romanian company with eleven employees, established in 2005. The company is a value added reseller of hardware and software equipment, offering technical assistance and service for IT equipment, monitoring, ICT consultancy, set up of computer networks, servers, PCs, network

equipment, VPNs, security systems. The company works exclusively with firms from the private sector and public administration offering solutions for small companies as well as corporations.

The firm is set up in a space with two rooms, one being an open space with three desks and another two desks separated by a wall and the other room being set up for technical assistance.

The interview was held with the CEO, who is also a co-founder of the company along with two other partners. The interviewee did not fully understand the term knowledge management from the beginning and a definition of the concept was needed. On the other hand, the interviewee had good understanding of the concept cloud computing. He stated that the company needed to manage information regarding partners, clients, offers, documents, work procedures and norms as they also follow ISO standards, financial information and so on. In order to do so, they use accounting and management software.

The CEO was asked if the company uses cloud computing for knowledge management, and responded: "*Yes. We use cloud now. We actually implemented it one month ago […]. We have internal cloud, hosted on our own server.*" As for the reasons to change to cloud computing the CEO replied: "*We needed to have access from anywhere to multiple devices. Now we have access from smartphone, laptop, home computer and some colleagues use tablets. Before, we used to access our computers remotely, with "TeamViewer", but it wasn't always possible. When one of us was in vacation, business trip or at a conference for example, it was harder to get the information we needed.*"

When asked how employees communicate and share information with each other and within the business, the CEO replied that they usually talk to each other as their desks are close to one another, but they also use email, Yahoo Messenger, Dropbox, and when they are in the field they call each other and even use Facebook and WhatsApp applications to communicate: "*Basically we have no restrictions on what we use to communicate and share information. It depends on the person and preferences. With clients though, we only use email, fax and phone.*"

The CEO also stated that the cloud was not difficult to understand and use and actually in order to have access you only need a username and password. Employees were immediately ready to use it.

The decision to adopt the cloud was taken by the general manager together with the technical consultant, but the decision was unanimous in the firm.

The CEO believed that firm size did not impact the adoption decision: "*We adopted cloud method because we needed this type of solution. I don't think that the size of the company mattered."*

As an inconvenience for implementing the cloud, the CEO stated that the transfer of data lasted for almost one week.

When asked about what other reasons were considered before making the final decision to deploy their knowledge in the cloud the interviewee replied: "*As I said before…the main reasons to use cloud were easy access, working from distance in optimal conditions and increased security...yea.. I think the main one was that we can access it from distance. I don't need to call to office anymore: send me that contract, send me that file..."*

4.3 Interview with company C2

MS Masini is a small company which represents top European and world producers of wood processing equipment (for furniture manufacturing) on the Romanian market. It was established in 2009 and has thirteen employees in total. The company has a close relationship with manufacturers and customers and besides consultancy services, it also deals with organizing production, designing technological flows, technical assistance and service during the warranty and post-warranty period or supplying custom parts.

The firm's offices were set up on an entire floor of a building, in cubicle format, the first floor being established as a showroom for the wood processing equipment.

The interview was held with the general manager, who worked for the company since 2010. The interviewee did now know exactly what knowledge management referred to until a definition was provided, but had a good understanding of the concept of cloud computing. The interviewee stated that the company uses knowledge management in their daily operations for the continuity and quality of the business. They store information regarding employees, partners, manufacturers, clients, work procedures and practices, documents, norms and many other things.

The company uses on premise knowledge management systems and the information is stored on their own server. They use software like CRM (customer relationship management), ERP (enterprise resource planning) and accounting software. Employees have access to specific information, depending on their job.

The company does not use cloud computing. When asked what the reasons were, the manager replied: "*We don't use cloud. We have our own servers which we set up years ago and things are working out for us. We don't really need it.*"

With regard to the intention to use cloud in the future, the answer was: "*Yes…for now I don't see any reasons for using cloud…maybe in the future when our servers are not enough anymore, maybe we will consider it. Now we have a system that is working and we wouldn't change it with something we don't know so much about…for example I am not sure yet if you can rely on the cloud, because of security issues.*"

When asked how the employees communicate and share information with each other, the interviewee replied that sometimes they use email but usually they communicate verbally, by walking to each other's offices and also calling each other on the internal phone line. In order to communicate externally with clients and partners, the company uses the phone and email.

4.4 Interview with company C3

Amco Advertising is a Romanian company established in 2001, currently employing sixteen people. The company represents an advertising agency, specialized in creating advertising materials for press, radio, printing, web design as well as cards, flyers and billboards. Moreover the company is also in charge of conducting marketing campaigns with services ranging from media planning, media buying, broadcasting reports and impact quantifying. The firm is set up in a building with three floors and multiple offices.

The interview was held with the general manager, who is the son of one of the owners and works for the company since 2005. The interviewee did not fully understand the term knowledge management until a definition was provided, and reported to use KMS for managing business information, such ascustomer information, economic performance monitoring, meetings, company information, information on employees, and work progress. The interviewee had a good understanding of the term cloud computing.

The company uses on premise knowledge management systems and the information is stored on servers. The company currently has three servers, with a forth one bought recently. Employees have access to specific knowledge, depending on their job description.

The company does not use cloud computing, the reason being: "*We don't use cloud computing yet. We just bought our forth server and we are ok for the moment, but I think that soon we will need to review our strategy and consider cloud as a solution for the future [...] it's like this way for the moment*".

When asked what would be the reasons for choosing cloud in the future, the answer was: "*In the last year we were in a process of expanding our business and trying to enter new markets. Sooner or later our servers will not have enough storage capacity, and cloud seems like one solution to consider. We still need a proper investigation before making a decision and moving everything to the cloud...I know for one that there are some security issues with the cloud."*

When asked how employees communicate and share information with each other, the manager replied that they usually just talk to each other but they also use e-mail, an internal messenger service, phone or the "WhatsApp" application. In order to communicate externally, the company uses e-mail, phone and "Skype".

4.5 Interview with company C4

60 Pd Eisenmarkt was founded in 2011 and has ten employees, eight in production and two administrators. The company manufactures parts for different types of equipment and machinery.

The firm is set up in a business park, and has a small production hall with a small office being situated at the entrance of the hall.

The interview was held with the general manager who was administrating the business together with his wife. The interviewee had poor understanding of the concepts of knowledge management and cloud computing and was not sure of the meaning even after a definition was provided. The interviewee stated that they store information regarding documents, contracts, employees or financial on the computer from the office (in the office were two computers). The company does not have complex knowledge management systems and instead uses manual processing software like Word or Excel to process information and also a paper based method to keep track and make notes. They also store many documents in physical form. The financial part is handled by an external accountant: "*We don't use any systems. We only use Word or Excel. We keep it simple. Probably we need to analyze these things as well but for the moment we are functioning like this."*

The employees communicate verbally and with suppliers and clients by email and phone: "*We communicate with employees verbally and with suppliers by email and phone or phone messages. With those whose goods we are producing we communicate by email and phone and sometimes we meet face to face […] We are using*

internet for many actions…we check online for suppliers, we use freight exchange - to fix transportation for our merchandise, we make our payments through internet banking…we use internet a lot."

After describing the term cloud again to the interviewee and presenting him the financial and technological benefits, I asked about the intention to use cloud if the company would grow bigger and starting to gather more and more information and will be in need of more complex KMS. He replied: *"We actually have a server now. It's not connected yet. We will use it to program our machines from the computer [..] about cloud I don't know. It's an idea..."*

5 Analysis

The aim of this chapter is to present the analysis of the results and discuss the findings and their linkages to the existing literature. Table 5.1 presents a structured summary of the interviews, created in order to facilitate the analysis.

Table 5-1 Summary of interviews

		C1	C2	C3	C4
KM		YES	YES	YES	Informal
Cloud computing		YES	NO	NO	NO
Knowledge creation		Socialization (verbal) Internet External interaction (partners, clients, suppliers) Internal Meetings IT tools Job training KMS	Socialization (verbal) Internet External interaction (partners, manufacturers, suppliers, clients) Internal Meetings IT tools KMS	Socialization (verbal) Internet External interaction (clients, suppliers) Internal meetings IT tools Job training KMS	Socialization (verbal) Internet External interaction (suppliers, clients) Externally (hire external staff to solve possible knowledge gaps)
Knowledge storage		Private cloud	Server	Server	Computer
Knowledge sharing	Employees	Verbal Phone General purpose cloud applications (Email, YM, Facebook, Dropbox, WhatsApp)	Verbal Phone Internal phone line General purpose cloud applications (Email)	Verbal Phone General purpose cloud applications (Email, Messenger, WhatsApp)	Verbal

		C1	C2	C3	C4
	Externally	Phone Email, Fax Meetings (face-to-face)	Phone Email Meetings (face-to-face)	Phone Email Meetings (face-to-face, Skype)	Phone Email Meetings (face-to-face)
Knowledge use (retrieval)		From cloud – ubiquitous access from any device	From server – within the firm	From server, within the firm	From computer – only in the administration office
Reasons for adopting cloud		Distance access Any time Multiple devices Security Easy access Convenience	-	(in the future) Expanding business Keep up with technology	-
Reasons for not adopting cloud		-	Established system Not needed Security Uncertainty	Established system Security Uncertainty	Doesn't understand the concept
Intention to adopt in the future		-	Maybe	Yes	Not sure

Among the interviewed companies it was found that three of them (C1, C2 and C3) had a formal knowledge management approach (deliberate and systematic, supported by ICT systems), even though they were not very familiar with the specific terminology. Company C4 was not familiar with the terminology as well; moreover the management of knowledge was informal. Nunes et. al. (2006) argues that in smaller companies it is likely that the management of knowledge is done in a more informal way, rarely supported by purposely designed ICT systems. This is because companies do not have necessary resources for formal ICT processes, but they still have in place different ways to capture and share knowledge within the organization (Coyte et. al., 2012). In the case of C4, besides lack of necessary resources, it was also found that the company had a low level of awareness regarding using KM and its importance. Also, Kloch et. al. (2011) argues that a significant number of SMEs are still using today manual billing systems or Excel like systems in combination with severe lacks of sufficient IT skills.

Company C1 had a good understanding of the concept of cloud computing, companies C2 and C3 understood the term but did not acknowledge general purpose applications (for example Email) as being cloud services, while C4 did not know the concept. Moreover, even after it was defined and

explained, the interviewee still seemed to have difficulties in understanding it. A study made by Tutunea (2014) on 1266 Romanian companies showed that approximately 61% of the companies indicated a low level of knowledge about cloud and a lack of knowledge concerning online tools belonging actually to cloud services. This leads to insufficient information regarding what exactly cloud solutions include, contributing to a high percentage of non – adoption (Tutunea, 2014).

In this thesis, cloud knowledge management, was defined as "creating, storing, sharing and using knowledge by employing an IT service model where hardware and software computing services are delivered on-demand, over a network, being able to be accessed anytime, anywhere, on any device and at any connection."

Only company C1 reported that it had adopted cloud (one month before the interview was done), deployed on its own server (private cloud). Companies C2 and C3 were using on premise KMS, using own servers and company C4 was using a PC.

In terms of knowledge sharing, it can be concluded that all four companies used cloud. Knowledge sharing was done in company C1 verbally, by phone and by using a variety of general purpose cloud applications like: Email, Yahoo Messenger, Facebook, Dropbox (stopped to be used after implementing own cloud server) or WhatsApp. In company C2 the knowledge sharing was done mainly verbally and by phone or email. In company C3, the knowledge was shared verbally, by phone and with the help of cloud applications like: Email, Messenger, WhatsApp, Skype, while at C4 the knowledge sharing between employees happened only verbally, Email being used only externally.

As company C1 was the only company that purposely used cloud computing for KM, the TOE framework was only applied to this case, in order to determine the main factors that influenced the adoption decision.

Based on TOE framework the adoption decision was influenced by three aspects of the firm: technology (relative advantage, complexity, and compatibility), organization (top management support, firm size, and technology readiness) and environment (competitive pressure, trading partner pressure).

Relative advantage

When a technology is perceived as beneficial, there is a bigger chance that it will be adopted by an organization. In the current study, the reasons of C1 for deploying their knowledge in cloud were: global accessibility, availability any time on any devices, improved simplified access, convenience and improved security. These reasons are consistent with the main reasons of adopting cloud in general by small companies. Security is being regarded here as a benefit because the company used a private cloud deployment model, meaning that the cloud infrastructure is privately owned and handled.

Companies' C2, C3 and C4 reasons for not using cloud to manage their knowledge were connected with the fact that the benefits of having cloud were not very clear to them, security, uncertainty and their existing infrastructure was satisfactory to meet their business needs.

Complexity

The complexity of using cloud (difficult to understand and use) was not a factor in this case, as the access was granted by username and password and employees were immediately ready to use it.

Compatibility

The compatibility of cloud with existing values, past experiences and needs of potential adopters was found to be an important factor as cloud met the needs of the company.

Top management support

The top management support was not found to be an influencing factor in this context, as the decision to use cloud was taken unanimously by employees. Small enterprises are less hierarchical and have a flat structure, thus the decision making chain is shorter (Wong & Aspinwall, 2004).

Firm size and technology readiness

Firm size did not influence the adoption decision, while technology readiness was a key factor in the adoption decision, as the company had the infrastructure and existing knowledge and skills among personnel. In a study performed by Hsu et. al. (2014), on cloud computing adoption intention, it was found that not the firm size but the IT capability of the firm significantly affects the cloud adoption decision.

External factors such as **competitive** and **trading partner pressure** were not regarded in this context as factors influencing the adoption of cloud KM. In the adoption of many mature technologies, external pressure is seen as an important factor (Tornatzky & Fleischer, 1990), but Hsu et. al. (2014) describe cloud computing as an immature technology and external factors in this case have an insignificant influence.

The TOE framework was long used for determining innovation adoption, factors varying depending on specific innovations. In the context presented in this study, *relative advantage*, *compatibility* and *technology readiness* were found to be the only factors that determined the adoption decision. This was a particular case of adoption given the deployment model used - private cloud, set up on the company's own server. This means that the firm can take advantage of the efficiency and features of a public cloud but with the security, performance or control of a dedicated environment. Private clouds are more complex to operate and they require experts able to manage, scale, secure or understand cloud architecture. This type of solution was fit in this case as the company had the necessary resources and skills. In the case of a public cloud, one must deal with service providers, security of data, interoperability, and data lock in and service level agreements, conditions under which other factors of the TOE framework might have made sense. The organizational culture and technological maturity of the company were also significant factors that influenced the adoption.

The main reason of companies C2 and C3 for not adopting cloud was that they had an already established knowledge management system and migrating to the cloud did not make sense for them, moreover company C2 reported that cloud computing was not very useful in their situation, thus it was not needed, even though both companies admitted that in the future they might think of other solutions, like the cloud, for managing their knowledge.

Both companies also addressed the security issues connected with the cloud and the uncertainty of using a service they did not know much about. Security is one of the main concerns found in the cloud literature, but there are some researchers (Ashford, 2009; Linthicum, 2009) who argue that cloud computing can provide a better security and reliability than in-house environment. Ashford (2009) comments that cloud computing can have the same security, or even better than what most

companies accomplish nowadays in traditional environment. He argues that data is typically lost when for example laptops or USBs are stolen or lost, but local storage would no longer be necessary with cloud-based apps. Green (2010) further notes that not many companies can truly say that they have an internal data policy more rigorous than the one of a third party. Field (2010) explains that companies have a tendency to assume that their data is safer in-house because they have control over it. However, large cloud providers have the means of funding more significant security measures. Another concern connected with security is the location of data, which is a problem which can be solved by privacy regulations. In the European Union, various governments have regulations that restrict the transmission of some types of data outside the EU. This led companies like Amazon and Microsoft (important cloud providers) to develop services that use data centers situated in the EU, but also allow users to choose the geographical locations for their data centers (Sultan, 2011).

Company C4's reasons for not adopting cloud computing for managing knowledge were connected with the lack of a proper understanding of KM and the cloud.

The four companies interviewed in this study had different levels of awareness regarding cloud computing and KM, this levels being influenced by the type of industry they operate in, the information intensity, technological maturity, organizational culture or their strategies.

6 Conclusion and discussion

The aim of this study was to determine if adopting cloud KM is a viable way forward for small enterprises and to investigate what are the main factors that influence these companies to adopt such solutions.

The literature analysis of cloud KM shows that small companies have now the opportunity to acquire major IT capabilities including KM through cloud computing, which was unaffordable before this new technology. Researchers argue that cloud computing can be used for managing knowledge by organizations of any size, however, it is more promising for small enterprises as a lower investment in IT infrastructure can create a competitive advantage and help them implement KM activities as a strategic resource. Moreover, given the resources constraints of small enterprises, cloud-based KM could present them with an opportunity to take advantage of a domain usually dominated by large and resourceful organizations (Sultan, 2013; Rafiq et. al.2015)

Cloud computing can provide a central location to manage data, information and knowledge and a platform to make these available on-demand, anytime, anywhere and on any device. Another advantage of the cloud KM model, as compared to traditional KMS, is that companies can save money from set up and maintenance costs because they do not need to invest in their own hardware and software infrastructure. Instead they will purchase it on a pay-as-you-go basis, as a service. Cloud computing can help companies break organizational boundary limitations through automatic update and access to the newest and most relevant knowledge (Martson, 2011).

By using cloud computing technology, KM adopted also new dimensions for social networking and cooperation. More and more online social networking becomes valued as a knowledge sharing tool and not just a diversion for young adults (Martson, 2011).

Small companies can find cloud-based models for everything, ranging from general purpose applications (e.g. office, email or collaboration technologies) to sales management and accounting software. These cloud services can simplify their business processes and allow them to focus on their core business (Kloch et. al., 2011).

The research question employed by this study was: *What are the main factors influencing the adoption of a KM cloud-based solution in small enterprises?* In order to answer the research question, several steps were undertaken. First, I performed a literature review of the main concepts used, these being knowledge management, cloud computing and cloud knowledge management. The literature review was performed in order to get a better understanding of the topic and provide definitions, types, characteristics, common adoption drivers and concerns related to these concepts. The second step involved interviewing four small companies from Romania. The factors influencing the adoption of cloud KM were evaluated based on the TOE framework by analyzing technological, organizational and environmental contexts. Only one company purposively adopted cloud computing for creating, storing, sharing and using knowledge. All other three companies were using the cloud for knowledge sharing by using general purpose cloud applications, but they did not acknowledge these applications as belonging to the cloud.

From the analysis of the factors it was found that only the technology context (*relative advantage* and *compatibility*) and organizational context (*technology readiness*) had a positive influence on the adoption decision, while the environmental context did not prove to be important. As for the relative ad-

vantage, the perceived benefits of adopting cloud KM were: distance access, anytime, on any device, security, easy access and convenience.

The reasons for companies not adopting cloud for KM were that they had already established systems for managing KM, they failed to realize its benefits, and it was not perceived as needed, security, uncertainty and a low level of awareness.

The four interviewed companies belong to IT, consultancy, advertising and manufacturing industries. The firm belonging to the IT sector was the only one that adopted cloud KM, therefore it can be concluded that firms with higher IT capability (in terms of skilled employees and resources) preferred the cloud for managing their knowledge, possibly because these firms were more familiar with the latest information technology and kept up with IT trends, this conclusion being consistent with previous research.

The literature review pointed out that adopting cloud KM is a viable way forward, especially for start-ups and small enterprises, which can benefit from its numerous advantages and also keep up with technology. However, three out of four companies did not adopted. From their point of view they preferred to go along with traditional ways of doing KM, and thinking about new solutions in the future, when the old ways would not pay off anymore. It can be concluded that small Romanian companies insist on using old and hereditary KMS and have a resistance in the acceptance of new, modern technologies.

These results draw attention to small companies and service providers. By analyzing the costs of using and updating old KMS, together with their problems, cloud-based KM becomes a self-evident solution for sharing and effectively using organizational knowledge. But in order to be able to do so, the owners and managers of these companies must aquire sufficient knowledge.

In conclusion, I believe that this study is related to the prior cloud adoption studies, also contributing to cloud adoption literature by investigating the adoption of a cloud KM solution in small enterprises.

6.1 Limitations and further research

This study has a number of limitations which can act as directions for further research. The sample was limited to four companies belonging to four different industries. By analyzing more industries and participants per industry can help to better represent trends within each industry. Further research could also examine different regions, both nationally and internationally.

Moreover, further research could build on this study by employing a quantitative approach, in order to be able to statistically generalize the results. Also further studies could consider more variables such as organizational or individual characteristics of the owners/managers, network infrastructure and similar that may also affect cloud KM adoption.

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Appendix 1: Abbreviations

KM – Knowledge Management

KMS – Knowledge Management System

SME – Small and Medium-Sized Enterprise

CC – Cloud Computing

IT – Information Technology

ICT – Information and Communication Technology

RQ – Research Question

S-a-a-S – Software as a Service

P-a-a-S – Platform as a Service

I-a-a-S – Infrastructure as a Service

X-a-a-S – Anything as a Service

K-a-a-S – Knowledge as a Service

KM-a-a-S – Knowledge Management as a Service

EU – European Union

Appendix 2: Cloud-based KM – Previous research overview

Reference	Article	Journal	Research aim/objectives	Concepts
Cerri, Valle, Marcos, Giunchiglia, Nixon, Teymourian, Obermeier, Schuhmann, Krummenacher & Simperl (2008)	Towards Knowledge in the Cloud	OTM conference (COOPIS)	"Following the data in the cloud paradigm that is emerging today (such as Amazon S33), in this paper we propose a future vision of "knowledge in the cloud". This vision is applicable to critical collaborative tasks as different as life sciences and emergency response."	"data in the cloud" "knowledge in the cloud"
Delic & Riley (2009)	Enterprise Knowledge Clouds: Next Generation KM Systems?	International Conference on Information, Process, and Knowledge Management	"We assess the current state of the Enterprise Knowledge Management field and project the possible emergence of Enterprise Knowledge Clouds. We give some architectural views, discuss briefly the underlying technologies and describe roughly related applications."	"Enterprise Knowledge Clouds" "enterprise grids" "KM grids" "social computing paradigm" "collective intelligence"
Liao, Chih & Fu (2011)	Cloud computing: A conceptual framework for knowledge management system	Human Systems Management	"This study purposes to develop a conceptual framework of KMS architecture for knowledge management (KM) applications. The contributions of this model, is an organization can achieve its KM goal in a cost efficient method by using cloud computing for decision-making."	"relationship between cloud service and KMS"
Khoshnevis & Rabeifar (2012)	Toward Knowledge Management as a Service in Cloud-Based Environments	International Journal of Mechatronics, Electrical and Computer Technology	"In this paper, we introduced the architecture of KMaaS and its detailed services and their relationships and dependencies. We also analyze how different cloud deployment or service models can be used for knowledge management in the cloud environment and the application scenarios are provided as well."	"KaaS" "KMaaS"

Reference	Article	Journal	Research aim/objectives	Concepts
Sultan (2013)	Knowledge management in the age of cloud computing and Web 2.0: Experiencing the power of disruptive innovations	International Journal of Information Management	"This paper explores the innovation phenomenon of cloud computing and Web 2.0 and specifically examines their impact on organizational knowledge."	"online social networking for KM" "the people dimension" "KMS based on web 2.0 and/or cloud computing"
Sadeghzadeh, Haghshenas, Nassiriyar & Shahbazi (2014)	Adoption of Cloud based Knowledge Management	International Journal of Engineering and Innovative Technology	"In this paper, a framework to present knowledge management services on the main layers of KaaS and SaaS is first presented".	"cloud based knowledge management" "KaaS"
Rafiq, Bashar & Shaikh (2015)	Application of Cloud Computing in Innovative Knowledge Management Systems	International Journal of Recent Advances in Organizational Behaviour and Decision Sciences	"This paper discusses the trends in knowledge management and how new emerging technologies have impacted the way knowledge is managed [...] The cloud environment application will be discussed in detail with respect to the knowledge management strategies and their combined adaptability to cater to future needs in this area."	"cloud computing for KMS" "collaborative KMS" "KaaS" "Customer Knowledge Management Information Systems"
Gunadham (2015)	Potential of Cloud Storage Application as Knowledge Management System	International Journal of Innovation, Management and Technology	"This study discusses the results of analysis on cloud storage application in the term of facilitating knowledge management. The analyses used in this study are exploratory which broadly seeks to address the research question, intended to document major functions of cloud storage application. The sample of current cloud storage application was explored and analyzed to compare the features in different categories."	"cloud storage application"

Appendix 3: Interview guidelines

Name: Adoption of Knowledge management cloud-based solutions in small enterprises
Purpose: To study what are the main factors influencing the adoption of a knowledge management cloud based solution in small enterprises

Firm background

(1) What is the number of employees?

(2) What is the main service industry the company operates in?

(3) How old is the company?

(4) What kind of information has to be managed within the company?

(5) How is this information shared with the employees? (Any tools?)

a. NO – Why not?

(6) YES – what tools does the company use? What is the purpose of each of these tools (what kind of information do they manage?)

(7) Are any of these "tools" (systems) deployed in the cloud (i.e. run over the internet)? Which ones?

a. NO – Why not?

Technology

(8) YES - What are the reasons of adopting a knowledge management cloud-based solution by the company?

(9) Was the process of adopting knowledge management cloud solutions challenging? Why?

(10) Was compatibility of the knowledge management cloud solution with existing infrastructure seen as a factor in the decision-making process?

(11) What other factors were considered before making a final decision to adopt knowledge management cloud services by the company?

Organization

(12) Was top management support a factor in the adoption process of the company?

(13) Do you think that the firm size could impact the adoption decision? Why? Why not?

(14) Was technological readiness seen as a factor when the company made the decision to adopt knowledge management cloud solutions?

*readiness – refers to the existing infrastructure and the ability of IT human resources (employees) understand and adopt a new technology