Survey Analysis of SMEs By Using Cloud Computing

[1]R.Meganathan, [2] Dr. R P Singh
[1]Research Scholar, 2 Research Guide
[1]SSSUTMS, Sehore, India, [2]SSSUTMS, Sehore, India

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Abstract— **In this study presents the survey findings conducted for cloud based ERP adoption in SMEs. The survey was consisting different questions for answering the research question. The whole questionnaires are available in the following sectors. The quantitative data from 23 SMEs respondents were collected. A evocative statistics technique was used to carry out the survey findings. The survey was conducted surrounded by the SMEs in order to understand the acceptance factors such as the present state of cloud utilizations, the knowledge about cloud concept, and the proper applications for outsourcing and key reasons behind cloud adoption for IT operations. It was also aims to discover the majority of appropriate service and deployment models that are of interest for SMEs business combination. The survey was also attempts to investigate the cloud facilitating factors such as cost, flexibility, scalability and rapid deployment issues. The factors resisting SMEs to accept cloud services such as the privacy, security, compliance, availability and reliability also studied by conducting the survey.**

IndexTerms—**Cloud Computing, Enterprise Resource Planning, SMEs,**
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1. INTRODUCTION

In this study we will present the survey findings conducted for adoption of cloud in SMEs. The survey was consisting of total 10 questions for answering the research question. The whole questionnaires are available in the following sectors. The quantitative data from 23 SMEs respondents were collected. A evocative statistics technique was used to carry out the survey findings. The survey was conducted surrounded by the SMEs in order to understand the acceptance factors such as the present state of cloud utilizations, the knowledge about cloud concept, and the proper applications for outsourcing and key reasons behind cloud adoption for IT operations. It was also aims to discover the majority of appropriate service and deployment models that are of interest for SMEs business combination. The survey was also attempts to investigate the cloud facilitating factors such as cost, flexibility, scalability and rapid deployment issues. The factors resisting SMEs to accept cloud services such as the privacy, security, compliance, availability and reliability also studied by conducting the survey.

II. SOCIO-DEMOGRAPHIC PROFILE OF SMES

In order to understand the socio-demographic structures of the SMEs such as the business company operates, the size and role of the company we raised the following questions:

In which field does your company operate?

Figure 1 shows the different business area that SMEs representing and it also illustrates that almost half 50 percent represents the finance sector and 27 percent operates ICT sectors. The others specify the e-commerce and gaming related business operations. The findings indicate that finance sectors are feeling secure to deploy sensitive IT resources to cloud for reaped the benefits. Clouds attractive options such as data on demand, risk analysis and non-core processes (Garg, 2011) substantiate many financial service firms.

What is the size of your company that you represent?

The numbers of employees differ from small to medium and large organizations. In order to get a better overview of cloud computing utilization of dissimilar companies and the sizes they represent we prepared this question.
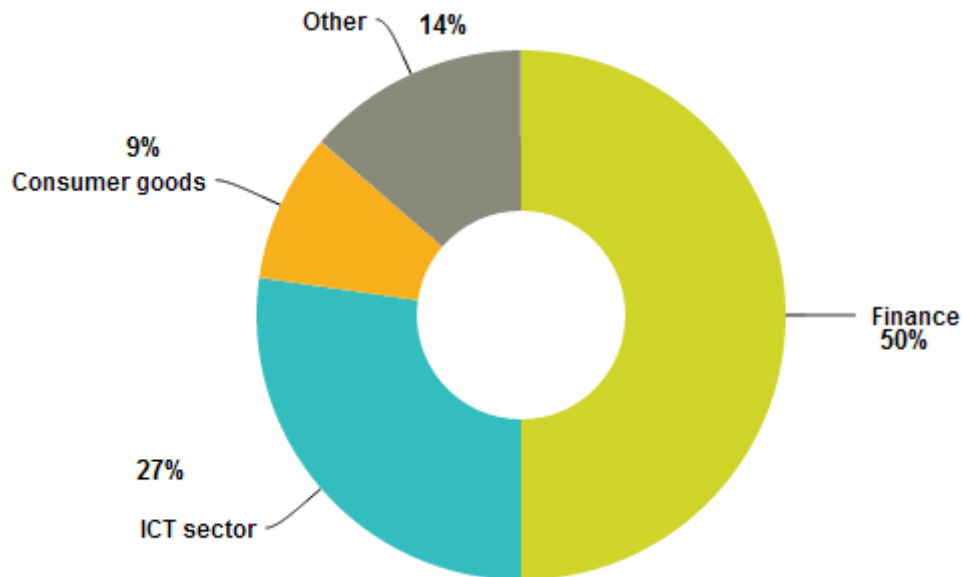
Figure 1: Business operational fields by the companies

Figure 2 illustrates that fifty five percent respondents SMEs have other than two hundred workers and twenty seven percent have in between ten to fifty employees. The key finding here is that more than half of the respondents SMEs represents to medium size companies.
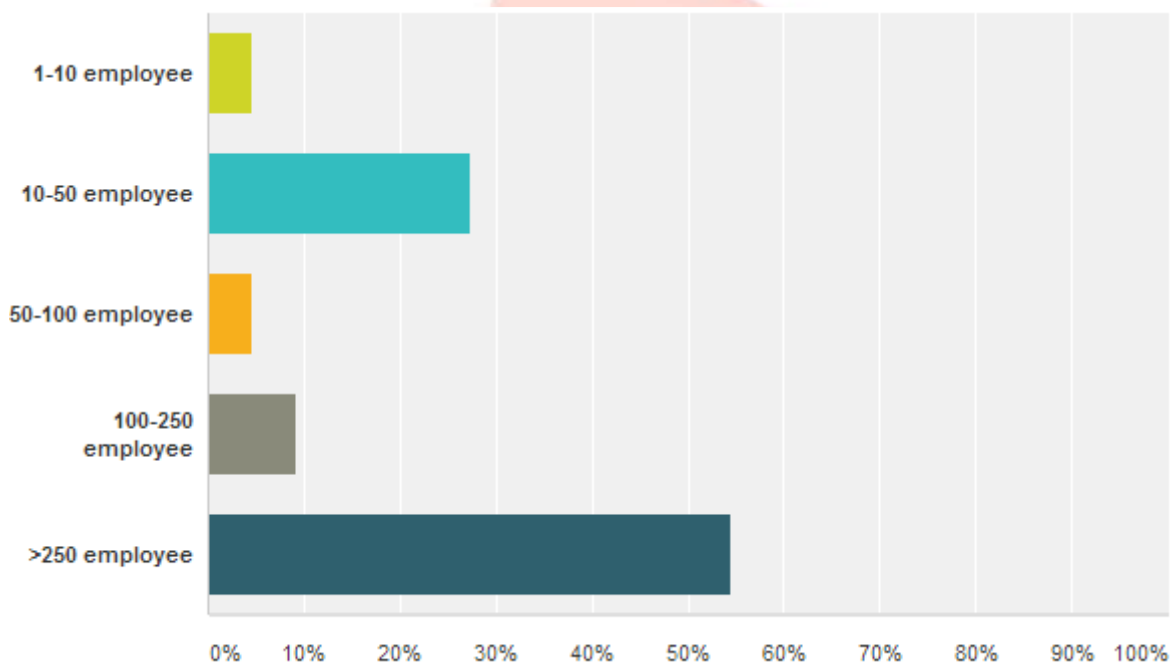

Figure 2: Employees representation the companies

What is your role in the company?

Furthermore to appreciate the role of participants who conveying the review we prepared this question. Figure 3 shows the analysis results about the role they characterize among SMEs. The interesting finding here is the employee that responses are total 64 percent followed by the IT managers which represent almost 32 percent.
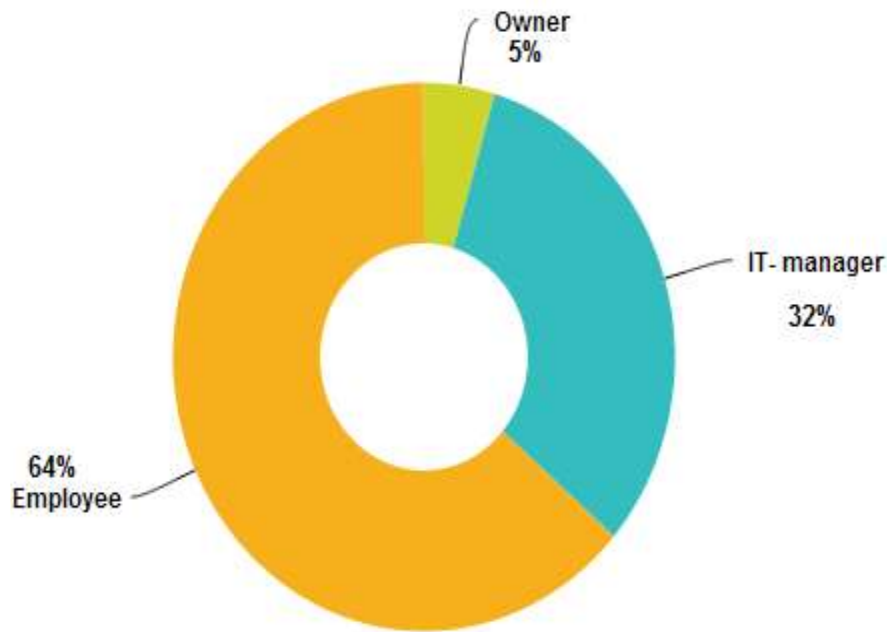
Figure 3: Employees representative the companies

III. THE KNOWLEDGE AND UTILIZING STRATEGIES OF CLOUD

SMEs are inherently different in comparison with the large enterprises. This includes the resource constraints such as restricted IT budgets, appropriate manpower skills and knowledge about distributed cloud computing. The knowledge that might be a cause not adopting cloud as every day basis ICT utilization makes SMEs defenseless so we raises this question.

How would you rate your knowledge of cloud computing?

As shows in figure 4 and also agree with the statement from the European Commission that be short of e-skills and ICT tools utilization and ERP in SMEs makes them not only the inability to competition with their counter parts but also preventing business growth. SMEs are not aware of how cloud can transform their IT landscapes. The marketing hype about cloud, clarification of vendors services and many IT specialists passive reports about cloud makes insecure for SMEs cloud adoption. The understanding of cloud will accelerate the adoption rate among SMEs.

As conducted in this survey it shows that less than half of SMEs have good knowledge about cloud computing (37 percent) as shown in figure 4. The study also find that almost 11 percent in surveyed SMEs are not sure what cloud computing is. The survey conducted by ACCA (the Association of Chartered Certified Accountants) 1 shows that almost 50 percent respondents have very limited understanding about cloud computing. The survey conducted by "Global Cloud Computing Survey Results" found 60 percent respondents that lack of knowledge is the biggest barrier to cloud adoption 2.
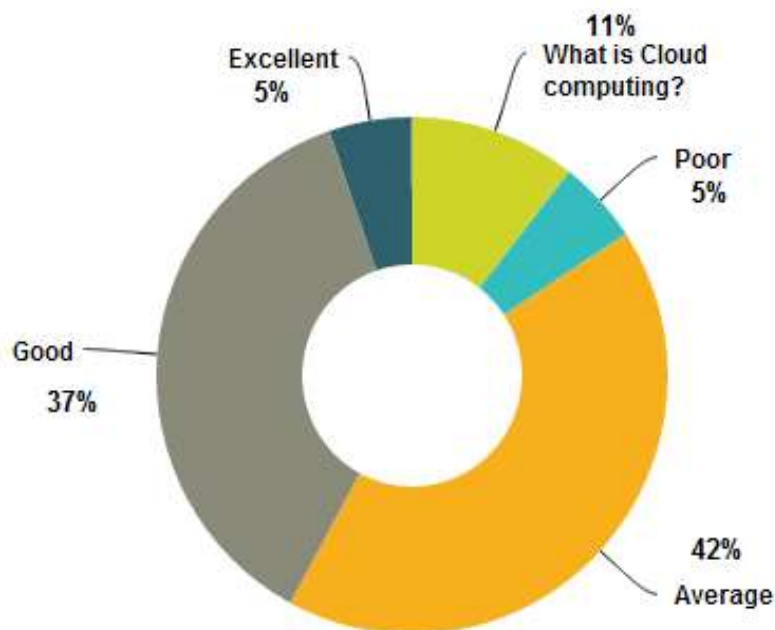

Figure 4: SMEs knowledge about cloud computing

If you plan to adopt cloud computing what do you intend to use it for?

Cloud computing provides flexibility, scalability and ready to consume IT services for SMEs especially for the start-up companies which are able to deploy all the necessary data and applications to the cloud for running the business. In order to understand SMEs plan for a possible approach to cloud based services the study raised the question. Figure 5 shows the analysis results reflects from the SMEs plan for strategically adopt cloud computing. The figure 5 illustrates that almost 53 percent of SMEs have plan to integrate cloud services with their current business operations.
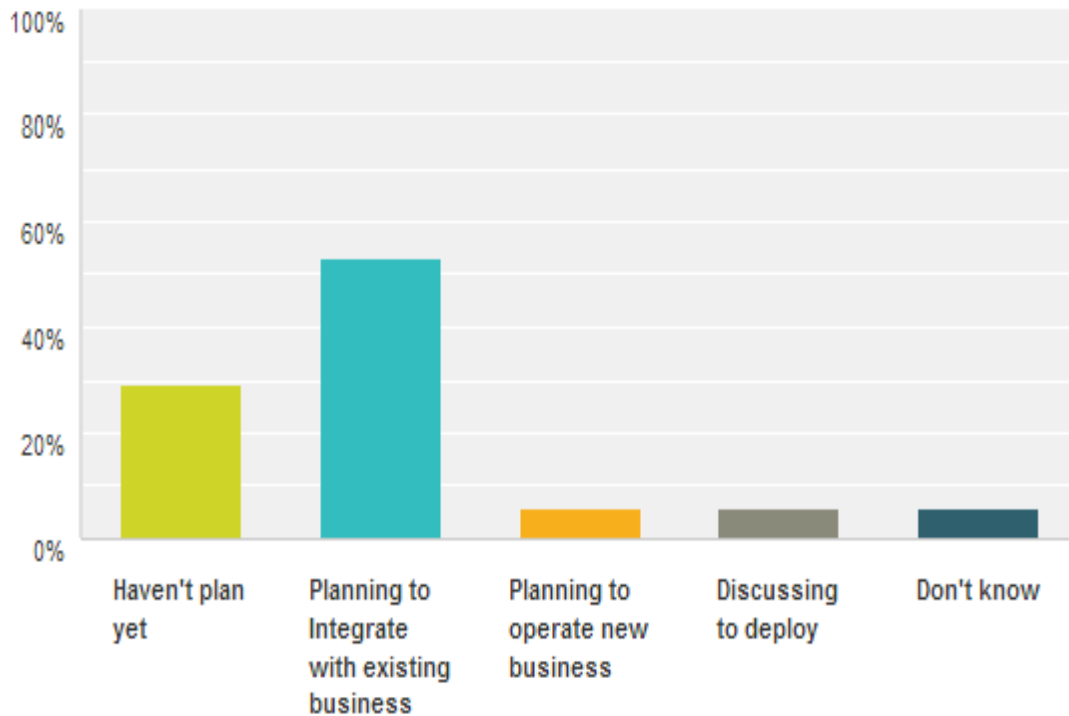

Figure 5: Cloud computing utilization strategies

As we mentioned earlier about the SMEs low level acceptance rate or embracing to cloud make them vulnerable. We also find that 6 percent of surveyed SMEs are planning to operate new business provide them stay competitive in the market, being innovative and furthermore be able to compete over the rivals.

IV. CLOUD COMPUTING PLATFORMS AND SERVICES

SMEs have the options to choose different cloud platform models such as private, public, hybrid or community cloud. All these models use a usage-based service where consumers only pay the IT resources they are utilizing. These deployment models provide SMEs many options as they can prefer the types of applications to be outsourced according to the risk and concern raised through these models. In order to understand the suitable deployment platform that SMEs are willing to deploy IT services to cloud we raise a questionnaire.

Which Cloud platform model is suitable for SME Perspective?

Figure 6 illustrates the analysis answer. The interesting findings suggests that community cloud (40 percent) is preferable for SMEs where they all have shared concerns such as risks requirements, policy, governance and compliance issues. Performance is a major concern for SMEs and this type of cloud is suitable as it can response a hosting application fast. Community cloud is designed for members who have the same business rules and regulations and also the resources can be shared among those group members. These models utilize the hardware efficiently thus reduce the cost and provide capabilities for customization for specific business demands.
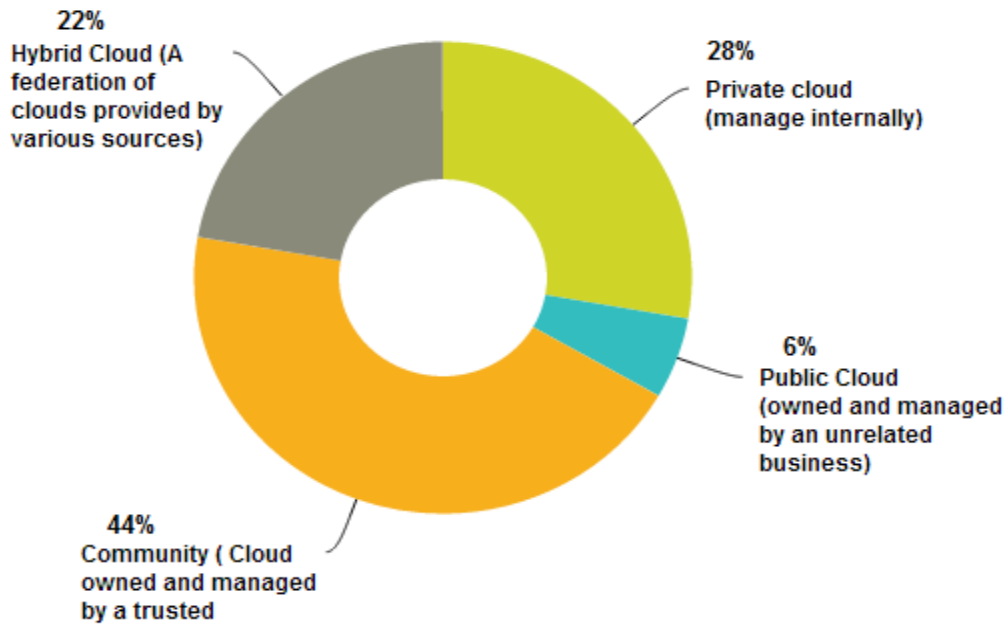
Figure 6: cloud computing services offered by the providers

The key findings is that very few surveyed SMEs are showing interest deploying IT resources to public cloud due to the barriers such as concern about the privacy, security and legal issues (6 percent). The study also reveals that SMEs are aware of utilizing cloud services by combining multiple deployment models namely the hybrid cloud (22 percent) model. SMEs interest about the private cloud shows that they are aware of the mission critical application that has to be deployed in private cloud (28 percent).

Which Cloud deployment model would you prefer to use for your business?

Cloud computing offers several service models based on pay as you go or pay per usage basis. Scalability is a great feature provided by the cloud makes SMEs to up and down their IT resources when needed. The different service models as SaaS, PaaS and IaaS offer SMEs to deploy not only data and applications but also provide them the necessary tools for rapid deployment of their IT resources. SME need not no care about buying or renting IT related equipments both hardware and software.

SMEs need not to think about experts and network, middleware and he abstraction layers to integrate which are rather demanding skills and proper knowledge in this area. Nevertheless this type of services helps to reduce cost for SMEs and helps consume their products instantly. Just couple of mouse click they are on line and pay just the services they consumes. How SMEs perceive the service models provided by the provider we raised this question about the preferable models that are suitable for SMEs application and data. Figure 7 shows the analyzed responses provided by the surveyed respondents.
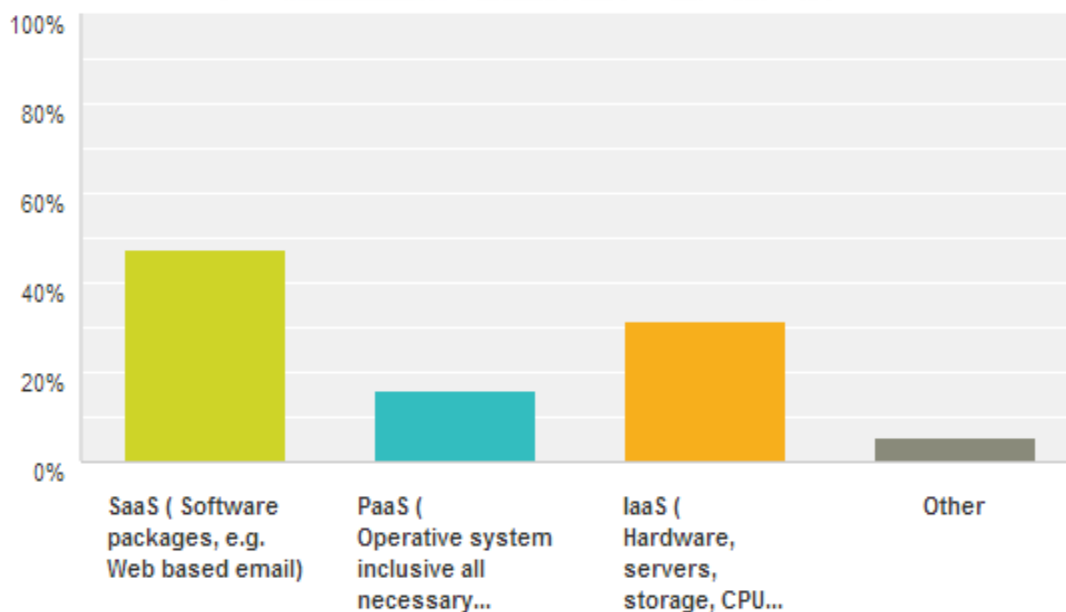

Figure 7: cloud computing services offered by the providers

The interesting finding here is not only utilizing the mostly used SaaS (47 percent) but also SMEs aware of combining all the different service models. One of the surveyed SME respondent commented that they prefer SaaS but when it comes more

complex and demanding solutions they rely integrating SaaS with PaaS or IaaS. SMEs intending to utilize all the necessary IT resources to cloud IaaS models (32 percent) so they would able to use all the hardware and software resources. It helps to reducing cost and eliminating managing, maintaining and monitoring the IT infrastructure. Whereas we found that 17 percent SMEs are interest to utilize PaaS model that includes such as OS, application software and databases etc. The current ERP software is represented in Figure 8.
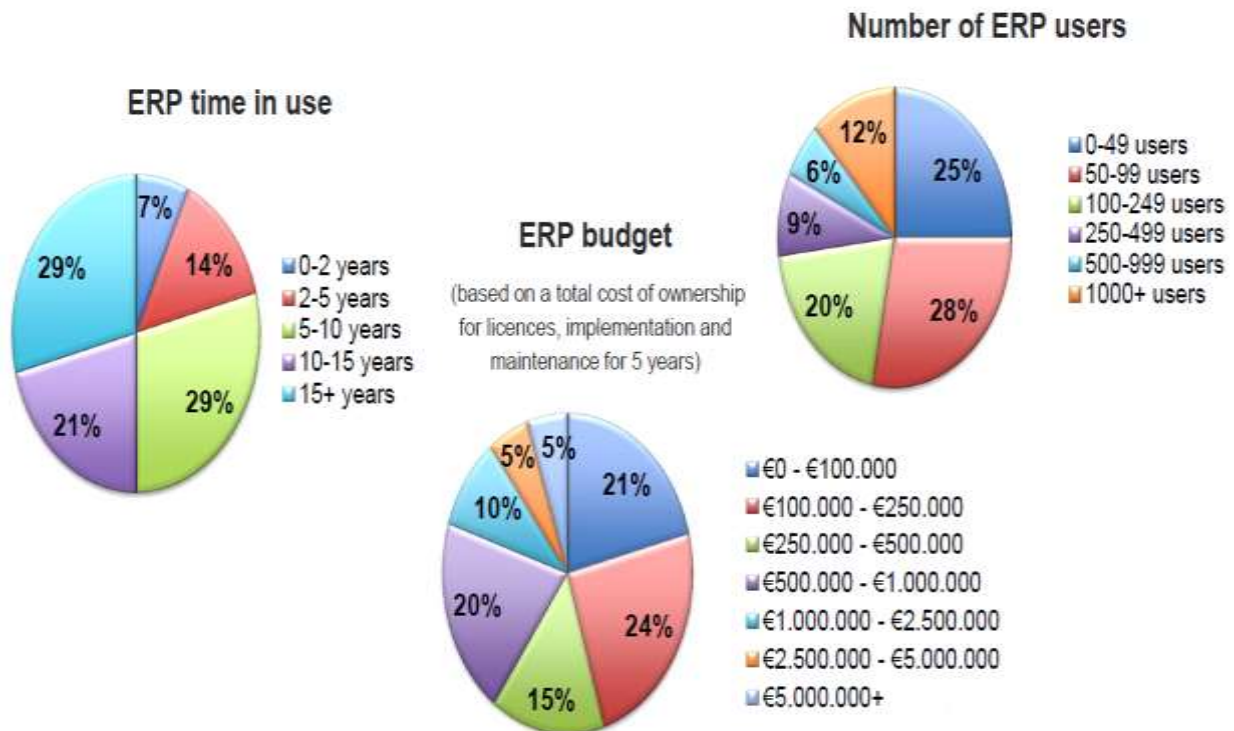

Figure 8: Current ERP Software

- High adoption private Cloud ERP: "For many years now there is a high adoption for private Cloud ERP. This trend seems to be continuing. ERP customers consider private Cloud as an option with the advantages from outsourcing, but fewer disadvantages and risks than public Cloud."
- Low adoption public Cloud ERP: "The adoption of public Cloud ERP is still very low, especially because of concerns about security, privacy, integration and customization. When the functionality and technology of public Cloud ERP become more mature and the concerns play a less important role, the adoption of public Cloud ERP will increase slowly."
- High adoption public Cloud ERP in specific industries: "The adoption of public Cloud ERP is relatively high at small, young companies with less complex, standard business processes."
- High adoption public Cloud for specific applications: "Although the adoption of public Cloud ERP is still very low, the adoption of public Cloud non-ERP applications like CRM, HRM and BI is very high. These applications are being considered as less complex and less risky to bring to the Cloud."

V. Conclusion:

The primary goal for the use of survey instrument was to answer the research question that is to investigate the adoption factors which might affect SMEs for cloud adoption. The review finding addressed that factors that have optimistic impact which can facilitates the beneficial issues such as cost, flexibility, scalability of IT resources such as physical storage and rapid deployment issues. These factors are solution drivers at the back of the progress of cloud adoption; the study shows that cost lessening is the primary reason for a possible approach to cloud. Our study also establish that SMEs are conscious of utilizing particularly Software as a Service (SaaS) models for deploying IT resources which are for casing in point applications such as e-mail, web hosting, backup, and software testing and data storage purposes.

Reference:
[1] S. Bradshaw, c. Millard, and I. Walden, "Contracts for Clouds: Comparison and Analysis of the Terms and Conditions of Cloud Computing Services", Queen Mary University of London, School of Law, Legal Studies Research Researches No. 63/201.
[2] R. Clarke, D. Stavensson, "Privacy and Consumers Risks in Cloud Computing", in Computer Law and Security Review, 2010, Vol. 26, no 4, pp. 391-397.
[3] Trivedi K, Vasireddy Ranjits, "Modeling High Available System" Department of ECE, Duke University, USA.

[4]   Barbara Daniel , Molina Hector-Garcia , and Spauster' Annemarie, "Increasing Availability Under Mutual Exclusion Constraints with Dynamic Vote Reassignment.", ACM Transactions on Computer Systems, Vol. 7, No. 4, November 1989, Pages 394-426.

[5]   Bachmann Felix, Bass Len, Nord Robert, "Modifiability Tactics, Technical Report, Software Engineering Institute" CMU- September, 2007.

[6]   Shah Merry., "The Coming-of-Age of Software Architecture Research," CMU- IEEE- 2001.

[7]   Martin Nigel, Gregor Shirley, Hart Dennis, "Using a Common Architecture in Australian e-Government - The Case of Smart Service Queensland", ACM-2004.

[8]   Foster Ian, Zhao Yong, Raicu Ioan, Lu Shiyong., "Cloud Computing and Grid Computing 360-Degree Compared."