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Emerging Technologies In The Implementation Of ERP

Dr. Sarvjit Singh Bhatia,
Assistant Professor,
Khalsa College Patiala,
vincal67@rediffmail.com

Vikram Gupta
Assistant Professor,
Khalsa College Patiala,
vicky_hiten@yahoo.co.in

Abstract

Enterprise Resource Planning(ERP)is used more than a decade; however, the continuing efforts to promote this technology have been carried out. With introducing Cloud Computing technology, a wide variety of service can be implemented on Internet, which has a profound effect on the application of information systems and Internet. World is changing very fast in terms of enterprise systems and industries need very specialized solutions. Industrial problems are very complex and need lot of money and efforts. Availability of expertise and skills causes another problem in the industry . Organizations that face an ERP implementation project have several risks to consider in order avoiding problems that cause failures. In this paper, the ERP and Cloud Computing are defined as a joint system. With the discovery of different aspects of these two technologies, using their specification and focusing on organizations specification, we suggest some recommendations for using them collaboratively. In this article, first, different aspects of this technology (Enterprise Resource Planning) are discussed. Later Cloud Computing and its current future, Cloud ERP and using Cloud Computing future for ERP implementation are discussed. Finally; we suggest some recommendations about how an enterprise can use the Cloud ERP benefits.

KEYWORDS: Enterprise Resource Planning, ERP, Cloud Computing, Cloud ERP, Cloud Computing Security

1. INTRODUCTION

In response to growing global competition, many organizations have embarked upon enterprise resource planning (ERP) implementation. An ERP system is an integrated software solution that spans the range of business process that enables the companies to gain a holistic view of business enterprise. It promises one database, one application, and a Unified interface across the entire interface (Bingi P.,Sharma M.K. and Godla J.K.,(1999).The integration of computer system was appealing to the organizations because it would allow real time access to data, reduce the redundant data element and lower the costs associated with maintenance of multiple systems. ERP system were intended to help the organizations increase the efficiency and provide a higher level of customer service.

An ERP system may be defined as a packaged business software system that enables a company to manage the efficient and effective use of resources (materials, human resources, financial, etc.) by providing an integrated solution for the organization's information processing needs. ERP system provides two new and different types of functionality - Transaction Processing Function: allowing for the integrated management of the data throughout the entire company, Workflow Management Function: Controlling the numerous process flows within the company. ERP system can also be an instrument for transforming functional organization into process oriented ones. When properly integrated, ERP supports process oriented businesses

effectively (Al-Mashari-2000). Up to mid 1990s, SMEs sectors in India had operated under a much economic regime characterized by limited competition and a highly regulated business environment. This business atmosphere had resulted in limited focus on the process efficiencies, centralized control structures, highly formalized business practices (Ranganathan and Kannabiran ,2004). However, following the economic liberalization and opening up of the economy to the foreign Multi National Companies (MNCs), Indian SMEs have been forced to adopt modern business practices and strategies, which in turn can provide the SMEs a cutting edge over its competitors.

In this paper authors have tried to present the issues and the challenges in front of Indian industry for the implementation of ERP with the help of cloud computing.

2. ERP OVERVIEW

ERP system is an IT Solution that helps organization to achieve enterprise wide integration which results in faster access to accurate information required for decision making. ERP has its roots in manufacturing as the name is an extension of Manufacturing Resource Planning (MRP-II) (Devenport, 2000).Many multinationals restricted their business to only those companies that uses the same ERP as them (Shehab,2004). As SMEs have MNCs as their clients, they have to consider ERP system as a requirement to allow for tighter integration with their larger counterparts. Before ERP came into the existence, different departments had their own software system to meet their requirements. In 1990s, globalization led to immense competition and companies, especially in the manufacturing sectors. Now manufacturing industries move toward the agile manufacturing ,continuous improvement of business process reengineering. This required an integration of manufacturing with other functional areas like accounting, marketing , HR etc. This led to the evolution of MRP II to ERP System (Sadagopan 1999).

ERP combines all the business functions together into one single integrated system with a single central database. This system serves the information need of all the departments across geographies, while allowing them to communicate with each other. A typical ERP system consists of modules for manufacturing, production planning, quality management, financial management, human resource, sales and distribution etc.

2.1 ERP Benefits

The benefits of ERP in any organization are beyond the doubt. Some of the key benefits are as listed below

- Reduced planning life cycle
- Reduced manufacturing cycle time
- Reduced Inventory
- Reduced error in ordering
- Reduced requirement of manpower
- Better utilization of resource
- Enable global outreach

- Enables faster response to changing market situation.

2.2 Cloud Computing

In the simplest terms, cloud computing means storing and accessing data and programs over the Internet instead of your computer's hard drive. The cloud is just a metaphor for the Internet. It goes back to the days of flowcharts and presentations that would represent the gigantic server-farm infrastructure of the Internet as nothing but a puffy, white cumulonimbus cloud. The Cloud Computing is a model to provide special services on the Internet. These services can be Networks, Servers, Storage environments, Software, Services and etc. These services are provided by companies like Amazon, Apple, Google … and their security is provided by protocols such as web 2 and SOAP. The Cloud Computing can be an application delivered as a service on the internet like processing, spread sheet, email, calendar and etc. which have been provided by some providers like Google or Apple. It also can be Hardware's and system software's in the datacenters that provide those services virtual machines. Amazon S2 and IBM Cloud are examples of these services. It can be rapidly provisioned and released with minimal management effort or service provider interaction. Cloud Computing provides many specifications and abilities to use IT infrastructures, and these specifications are based on high quality services with low prices. Some specifications are limiting IT investment, Market environment data storage, capacity and elasticity that include flexible and scalable computing processing power to match elastic demand and supply, whilst reducing capital expenditure and Pay as you go model and avoiding the expense and time–consuming task of installing and maintaining hardware infrastructure and software applications and demand computing resources , upfront commitment by Cloud users , Pay for use of computer resources , Portability of the application, Information access from anywhere , Guaranteed service level , Special supporting , and Security control improvement. The application of this new technology reduces IT costs and increases business capabilities. This new technology are cause to reduce the IT costs and optimization in business. Based on the accessibility in Cloud Computing environment for users, this technology is divided into Public Cloud, Private Cloud and Hybrid Cloud. Public Cloud is a service that includes hardware, processing power and memory shares between different users and virtual machines are used to run and apply this service by users. VM's virtually separate hardware and software for each user. Users can access this service by web browsers. Based on user's processing power or Memory usage that they should pay, we call such service pay as you go. In this kind of service, hardware may be hosted in different locations. In Private Cloud hardware and IT infrastructures located in an organization or these infrastructure used with physical separation from other infrastructures, no hardware and software will be shared among users. This will cause an increase in security and performance, but we undertake extra cost for these improvements. Such a structure increases the customer's data security and customers can change settings and configuration based on their demand. A private Cloud is set up within an organization's environment. It is hosted for single client, and privately owned and managed so it's access limited to client and its partner network. Private Cloud is easily aligned for security, compliance and needs regulatory requirement and more Enterprise control over deployment . Hybrid Cloud is a combination of the two other structures. A hybrid Cloud is a private Cloud linked to one or more external Cloud services. It is a mix of both public and private Clouds and centrally managed and provisioned as a single unit and circumscribed by a secure network .

Cloud services are provided in three services:

- IaaS (Infrastructure as a Service)
- PaaS (Platform as a Service)
- SaaS (Software as a Service)

In Infrastructure as a Service, customers buy their needed infrastructures, you own and purchase the software and virtual power to execute as needed. This service is a running virtual server on a virtual environment. You pay for your usage, as we mentioned before by "as you go" model. This minimizes the need for huge initial investment in computing hardware such as servers, networking device and processing power. The Amazon EC2 is an example of this service, by this model customer's focuses on the decrease of hardware such as servers, storage and network devices. In IaaS, financial and functional flexibility were not found in internal data centers or with co-services. Platforms as a Service is constructed from platform, depend on the integrating of operating systems, middleware, application software or an environment development which encapsulate service through an API manner. The Microsoft Azure is an example of this service. Of course, such as service is based on virtual machines and provided by web browsers or client software which is provided by Cloud providers using internet. Software is a service which is a complete application that is offered as a service on demand. It's like that you rent the software to the user, such software is accessed by both web browsers and Cloud client or front end. On the other hand, SaaS is hosted software in Cloud provider's data centers. The Google APP and Apple Cloud are example of such service, and can be accessed by browsers or client software.

3. *RESULTS AND DISCUSSION*

Other researches about Cloud Computing and it's usage in ERP implementation, only focused on advantage of Cloud Computing. In some advantage of Cloud Computing is discussed. In different aspect of traditional ERP and Cloud ERP is compared. In different implementation method of ERP system on Cloud Computing is focused. But in none of them disadvantage and barriers of Cloud Computing that will be affect this new technology is discussed.On contrast Cloud Computing has security & privacy issues that limits its application so our suggestion is focused on using advantage of Cloud Computing while with consideration it's problem and suggest a new way for enterprises and company to choose this new technology.

Cloud Computing has lots of problems in security, because this technology is new and we can see that lots of problems will be appeared in feature. Data availability for business continuity is one of the most important problems in Cloud Computing environment.

Some other obstacles that organization should be faced by implementing Cloud ERP are including the connection costs for both network and internet and the lack of appropriate security structure for Cloud Computing. On the other hand, SME's or small and medium size organizations have limitations in the amount of investigation in ERP, so they can move to use Cloud ERP.

CONCLUSION

Information Technology is affected in different aspects by Cloud Computing; one of these aspects is Enterprise Resource Planning (ERP). ERP, including a wide range of different activities, leads to improve performance of an organization and all data and processes of organization are collected in a single Cloud ERP is nothing more than ERP software that had been implemented on Cloud. This new technology has some advantages and security problems that affect the organization decision to implement Cloud ERP.

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