A Study of Impact of ERP and Cloud Computing In Business Enterprises

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Abstract: **The 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 .Enterprise resources management solutions are one of the example for this kind of problem. The complicated project of an ERP system implementation in industry results in large changes in the systems. Organizations that face an ERP implementation project have several risks to consider in order avoiding problems that cause failures. Business applications are increasingly prevalent in the Small and Medium-sized Enterprise (SME) sector. Business vendors are targeting SMEs but many projects fail due to poor planning, lack of resources, organization immaturity and failure to understand the complexities of integrating such applications with existing business systems.**

This study looks at how manufacturing Small and Medium-sized Enterprises (SMEs) using or planning on using Enterprise Resource Planning (ERP) software could integrate Business to improve the availability of operational and strategic planning information within the constraints imposed on organizations in the SME category.

Index Terms: **SME, ERP, CRM, SCM, SAAS**

I. INTRODUCTION

ABusiness (also known as enterprise or firm) is an organization involved in the trade of goods, services, or both to consumers. Businesses are predominant in capitalist economies, where most of them are privately owned and administered to earn profit to increase the wealth of their owners. Businesses may also be not –for-profit or state-owned. A business owned by multiple individuals may

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be referred to as a company, although that term also has a more precise meaning.

The etymology of "Business" relates to the state of being busy either as an individual or society as a whole, doing commercially viable and profitable work. The term "Business" has at least three usages, depending on the scope- the singular usage to mean a particular organization; the generalized usage to refer to a particular market sector, "the music business" and compound forms such as agribusiness; and the broadest meaning, which encompasses all activity by the community of suppliers of goods and services[1].SMEs need Business tools integrated with their financial (and other) applications   so users (not only dedicated IT resources) can access the financial and operational data residing in the ERP systems in a quick, easy, efficient and cost effective manner.

The study approaches Business integration from three perspectives. Strategy process looks at how strategy is implemented in SMEs as a precursor to defining how Business applications can integrate organizational goals into Key Performance Indicators (KPIs). Business maturity models are presented as a roadmap to measure the capability and readiness of an organization to progress Business, and business tools are discussed from the perspective of selection, integration strategies and delivery platforms suited to SMEs culminating in a best practices framework for Business integration in the SME sector.

II. ERP SYSTEM AND ORGANIZATION

It is generally a misleading perception that implementing an ERP system will improve organizations' functionalities overnight. The high expectation of achieving all-round cost savings and service improvements is very much dependent on how good the chosen ERP system fits to the organizational functionalities and how well the tailoring and configuration process of the system matched with the business culture, strategy and structure of the organization. Overall an ERP system is expected to improve both backbone and front-end functions simultaneously [2]. Organizations choose and deploy ERP systems for many tangible and intangible benefits and strategic reasons. In many cases the calculation of return on investment (ROI) is weighted against the many intangible and strategic benefits.
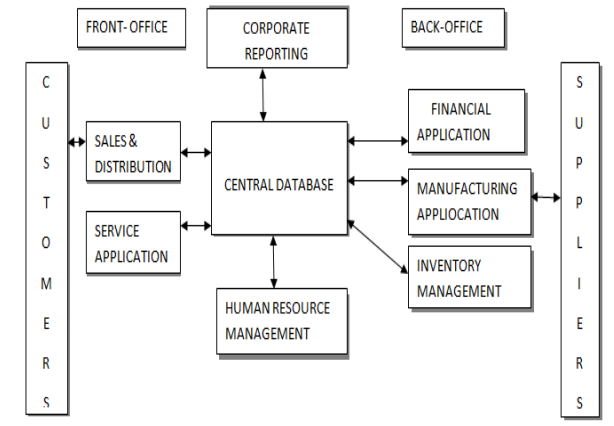
Fig 1 ERP System Concept

III. CLOUD COMPUTING

Small businesses can directly benefit from the cloud computing business trend by using cloud-based applications to cut down on the expense and trouble of doing the same thing themselves. Using someone else's mail servers through the Internet can be much more cost-effective (and hassle-free) than setting up your own email server in-house, for example, - especially if you don't have a dedicated IT person or department[7].(There are disadvantages of cloud computing for small businesses, too, but they are outweighed by the advantages in my opinion.)

But with increasing numbers of businesses looking to contract out business processes, small businesses are also well-positioned to benefit from the cloud computing trend by picking up some business. It's not size or location that matters with cloud computing, it's expertise.
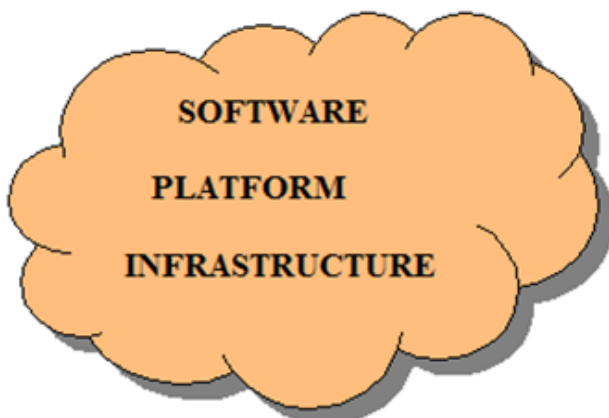

Fig 2.Cloud Computing

IV. METHODOLOGY

This section outlines the research methods which are employed as part of the primary research.

A. Survey related data

Current survey data and market analysis research is used to ascertain the issues facing SMEs when contemplating a Business project. A survey of manufacturing SMEs is also conducted as part of the research to determine operational and strategic planning practices, the level of awareness and use of Business tools among SME's, the approach to ERP implementation, the degree to which ERP is actually used where it is installed, and the acceptability of non proprietary software (SaaS, open source, cloud etc.)[3].The literature review and survey sought to provide support for the second hypothesis which stated that lack of knowledge of Business tools and their capabilities among both IT and non- IT decision makers contribute to its low take-up in SMEs and also the third hypothesis which stated that SMEs aware of Business solutions do not pursue such implementations due to perceived cost and lack of resources.

B. Case Study

 A case study is used to ascertain the information requirements of a manufacturing organization to facilitate operational and strategic decision making and to determine the best way to integrate Business with ERP in SMEs. Analysis is performed using key users to ascertain what information is required to enable operational and strategic planning. At this point the case study focused on information required as opposed to specific hardware or software systems in use or to be used. The research methods used involved interviews with key staff as well as analysis of processes, reports and procedures used in generating operating and strategic information. It is useful to establish what information the key users felt is unavailable also. It is important to define what constitutes operational and strategic information and also identify the constraints likely to impact selection of a solution [9]. This provided a benchmark upon which to gauge the potential improvements to be achieved by implementing a Business problem solution.

The data gathered went through the following steps as typified in case study research by Leedy & Ormrod (2005):

--Organization of data into functional groups – by department and job function or role
--Categorization of data by function into sub groups based on data analysis.
--Interpretation of the data presented
--Identify patterns within the data
--Synthesis and generalizations as they apply to the case study

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C. Content Analysis

Content analysis involves tabulating the frequency of each characteristic found in the material being studied. This is used to design a comprehensive Businesses Vendor and Application Assessment Grid which companies could use to evaluate Business problem Solutions. Based on a review of literature coupled with knowledge gained from the case study, a comprehensive list of Business features is consolidated to provide a guide as to what features could be found in a Business problem solution. The resulting assessment grid provides a good starting point for companies embarking on a Business project helping them to align and compare Business problem solutions. The content analysis focused on vendor characteristics, product features, ease of use, costs, architecture, and resource requirements. This should help organizations focus on their individual requirements.

D. Vendor Interviews and Product Reviews

In order to present a more complete picture of Business problem solutions for the SME, the study included reviews of lesser known Business delivery methods and platforms, in particular Cloud Computing, SaaS and Open Source Business to heighten awareness of the alternatives available to SMEs other than proprietary licensed software.

V. SURVEY RESULT

The main areas of interest raised by the survey conducted as part of the primary research. The survey return percentage is approximately 22% of those invited from a population of 15 companies. Six surveys from the sample are deemed spoilt and discarded due to incomplete answers. The questionnaire may be viewed in Appendix. Participants are guaranteed anonymity so no individuals or business names will be included in this report. All responses are summarized and reported statistically. Potential participants are entered into a database. The detail entered consisted of their first name, last name and email address.

The survey focused on a number of areas including:

--Operational and strategic planning practices
--The level of awareness and use of Business tools among SME's
--The approach to ERP Implementation
--The degree to which ERP is actually used where they are installed
--The acceptability of non proprietary software (SaaS, open source, cloud etc.)

The purpose of conducting the survey is to provide evidence to support the hypothesis stated, particularly:

The second hypothesis: Lack of knowledge of Business tools and their capabilities among both IT and non- IT decision makers contribute to its low take-up in SMEs .and the third hypothesis: SMEs aware of Business solutions do not pursue such implementations due to perceived cost and lack of resources.

The research also sought to determine the level of detail maintained by companies on KPIs, particularly their link to corporate goals. For those companies using Business applications information relating to their view of the application as an IT or end user tool and expectations on cost were also sought. Finally resource requirements in terms of people dedicated to IT and Business support roles is also included.

The survey is targeted at CEOs, CIOs, IT Managers and Business Analysts. Although the sample size is small the returns do give a flavor of the attitudes prevalent within the SME segment towards ERP and Business software. The survey responses are presented in the following categories:

--Company details and respondent general characteristics
--Operational and strategic planning
--Business technology awareness
--ERP use

VI. CONCLUSION

Legacy IT absorbs a lot of an agency's available IT budget and is a primary barrier to IT responsiveness and overall business agility. It's the fundamental reason IT is not flexible, responsive, and efficient. Cloud computing is an emerging computing paradigm that is real and becoming progressively more popular.

While there are advantages and similarly challenges to adopting the cloud computing concept, the key consideration provided in this white paper can be used as a starting point. Adoption of cloud computing symbolizes a major cultural transformation for both CIOs and CISO and the lines of business each support. In an effort to better support the agencies' mission, senior IT management need to think freshly about "make versus buy" sourcing decisions for their IT service delivery capabilities.

The Cloud is going to happen. As we move forward in cloud computing for support to the mission, the federal enterprise should continue to strengthen formal processes to ensure that lessons learned from both industry and the governments own successful cloud computing initiatives are continually examined and broadly adopted across the enterprise. Many Benefits Accrue From Deploying An Enterprise Resource Planning (ERP) System. Many Of These Are Tangible Or Quantifiable In Nature; You Can Calculate The Savings Immediately. However, other benefits may not be quantified so easily, but they are also important. Both tangible and intangible benefits of deploying an ERP solution and attempts to give you good justification for the costs involved.

In survey result Some vendors are use ERP but some vendors use Cloud computing but some vendors use both of them and after that I take expert advice of this field and according to him we use both of them but both have some advantages and disadvantages. Cloud Computing involves

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the delivery virtualized IT resources as services over the Internet. Cloud Computing services are delivered in a scalable and secure manner from a remote data center on a "pay as you use" basis, and are categorized into infrastructure services (IaaS) (e.g. Amazon Web Services EC2), platform services (PaaS) (e.g. Google App Engine) and software services (SaaS). (E.g. Salesforce.com CRM applications).

A. Advantages of Cloud Computing

Server capacity can grow and shrink on demand. Cloud computing can be used to perform proof of concept with new projects without the need to invest in hardware, software and licensing costs by using an existing machine image for the environment you wish to test for example Windows Server, DB2 (Linux), Unix etc.

Using a cloud based solution negates the need to purchase hardware, software licences and annual hardware and software maintenance support contracts for company owned assets. Eliminate worries regarding aging hardware and asset replacement Operating system software upgrades are assured within a reasonable time frame. Avoid the costs associated with environmental controls in server rooms. Reduction in bandwidth and communication service requirements to local servers if multiple sites require access. Traffic is redirected to the Web.

Offsite data storage in a protected environment for contingency – perhaps some benefits here to having ERP on-site and the data mart offsite.

B. Advantage of ERP SYSTEM

Integration

ERP's most important advantage is arguably its ability to integrate virtually all business departments of a given company into a single, cohesive platform. In addition to synchronization of work flow, ERP also leads to global decision optimization, a clearer overview of enterprise functioning and quicker performance.

Reduced Operating Costs

Once the startup costs of ERP are navigated, users may discover rewards for their efforts in the form of reduced operating costs. ERP enables companies to have greater control over marketing, production and inventory. This reduces costs as well as reliance on help desk support.

--A perfectly integrated system chaining all the functional areas together.
--The capability to streamline different organizational processes and workflows.
--The ability to effortlessly communicate information across various departments.
--Improved efficiency, performance and productivity levels.
--Enhanced tracking and forecasting
--Improved customer service and satisfaction

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Brief description of the change: Add the second and the third authors