

Enterprise Resource Planning (ERP) As a Potential Tool for Organizational Effectiveness

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Abstract

Enterprise resource planning (ERP) is an application that guarantees seamless assimilation of information that flow throughout an organization. It helps in reducing cost, enhancement of productivity, increasing service quality, better decision making, etc. Implementing ERP helps in achieving competitive advantage, improvement in efficiency, profitability and business performances' in various types and sizes of industries. Though ERP system have active roles in the ups and downs of organizations in an increasingly dynamic and competitive market, it cannot be considered as a panacea for all the ills facing organizations. However, careful and cautious implementation of ERP will help in bringing in breakthrough performance.

Keywords

Enterprise Resource Planning, Organization Effectiveness, Efficiency, ERP.

Introduction

Enterprise resource planning (ERP) is an application used to plan and handle the capital efficiently, productively and profitably. (Laukkanen, et al, 2007). ERP ensures seamless integration of information that flow throughout an organization. According to Wadate (2014), ERP is a single database with an integrated framework. He also clarified that ERP regularly and reliably provides knowledge flow across the organization. ERP uses a single, uniform interface and relational databases and this helps the instantaneous use of data required for organizational operations (Hall, 2002). ERP integrates Information as well as information-based systems in all organisation's functional areas. This also helps information and processes to be integrated outside of the organisation. According to

Shang and Seddon (2000), it helps in aspects like reduction in cost, enhancement of productivity, enhancing service quality, better decision making, etc.

ERP originated in the late 1980's as a derivative of MRP systems that translated master production plans into requirement schedules. ERP technologies support and are used for a broader variety of business processes and functional areas than MRP II and are used in all types of industries (Hwang and Grant, 2011). Hillegersberg and Kumar (2000) explained that ERPs emerged in the industrial sector and the first generation of ERP softwares has been developed internally, moving from normal stock management packages to material requirement planning (MRP), material resource planning and then extending to serve the whole enterprise. According to Møller (2005), this software package has evolved and is defined ERP 2.

The present work conducted a scoping review of the available literature and finds out its potential to bring in organizational effectiveness. In doing so, the researchers have identified the requirements for successful implementation of ERP as well as reasons for failures. The intention of the present study is thus to present a balanced view of how ERP can be used to bring in organizational effectiveness.

Review of Literature

ERP matches the firm's core business procedures and processes and as a result of which it will dominate all other activities (Turbit, 2003). ERP implementation helps to attain competitive advantage, improving the quality, competitiveness and business performance of legacy systems or replacing them in all size of industries (Alexis, 2008; Jaiswal and Vanapalli, 2008; Parthasarathy and Anbazhagan, 2008; Nicolaou, 2004).

ERPs can also facilitate the creation of joint management centers for general administrative activities, such as invoicing and cheque processing. ERPs causes some works, tasks or sections redundant or smaller. This is because of an organization's structures for the integration of business processes, information processing and communication are revamped or rationalized (Greenbaum, 1998). During ERP implementation, the existing business processes of a organization are typically overhauled to suit the specifications of the ERP program (Davenport, 1998). To maintain a sustainable competitive advantage, businesses must be able to use ERP in a specific manner or in ways that allow the business to maintain specific and distinctive results (Porter, 1996). Now there is renewed focus on sustainable development in general and corporate sustainability (CS) in particular (Sulphey and Alkahtani, 2017; Sulphey and

Safeer, 2017; Sulphrey, 2019). ERP is one aspect that can help in achieving CS, and is now a hot topic.

Hsu and Chen (2004) addressed the significance of incorporating ERP in a task-oriented, automated, informative and actual-time atmosphere. Boykin and Martz (2004) stressed that ERP pushed the company to move from a job based approach to a modern method viewpoint. In addition, Davenport and Brooks (2004) highlighted that the key reasons for implementing a cross-functional management framework are the ERP systems. Al-Mashari and Zairi (2003) proposed that ERP implementations is done by processes & systems, and their incorporation into the corporate plan, framework and ideology.

ERP software incorporates an organization's various functional areas and serves as a bridge across the whole delivery network, promoting best business and managing of procedures practices. It will help to deliver the appropriate product at the appropriate spot, at minimal cost, at the correct time. ERP is one of the most significant sector in which IT spends money (Chung and Snyder, 2000).

Performance of ERP

ERP systems play a deciding role in the rise and decline of companies in an increasingly competitive era of globalization (Sarkis and Gunasekaran, 2003). ERPs basic purpose and aim is to arrange and assimilate all business-related data entry and processing systems. ERP aims to harmonize all functional activities of a business and is considered as one of the most critical elements of business.

According to Hall (2002), ERPs offer greater market alignment and performance, lower running costs, reduced inventories, lower plant size, more productive transactions and relatively short and faster reporting lines. Also, the processing of managerial tasks such as bill and cheque can also be facilitated through the development of shared centres. Many companies started implementation of ERP systems to remove the issues in existing methods & boost conversations with clients (Kogetsidis et al., 2008). A well-chosen and configured ERP is having the benefits of reduced time and cost of business processes, quicker transactions, better operating efficiency, enhanced customer and financial management and internet based applications (Kogetsidis et al, 2008). The primary strategic gain and vital goal of ERP is the improved ERP system integration (Hwang and Grant, 2011). Performance can be hypothesized in various dimensions (Koopmans, Bernaards, Hildebrandt, Schaufeli, De Vet Henrica, & Vander Beek, 2011; Qureshi, Zaman, & Shah, 2010; Yasir, Imran, & Irshad, 2013) and usually performance relates to

effectiveness as well as productivity is very important for individuals /organization as a whole (Sonntag & Frese, 2002; Yusoff, Imran, Qureshi, & Kazi, 2016).

However, the implementation of ERP has varied outcomes. The companies like Wal-Mart and Microsoft used systems developed internally, which was successful. (Iansiti, 2003). In the project management perspective, Abu-Hussein, Abu-Hussein, Hyassat, Hyassat, Sweis, Sweis, Alawneh, Alawneh, Al-Debei, and Al-Debei (2016) examined the efficiency of the ERP project using the elements of project management that execute such projects. Such factors include handling human resources, information management, risk management & time management, and results centered on the value of effective communication that can help increase employee trust. This contributes to the sharing of information required for efficient implementation of the ERP.

Success of ERP

It is reported that major enabler cum facilitator for ERP implementation is “The top management support” (Bhatti, 2005; Yingjie, 2005). In various Studies investigating the introduction of new systems and IT was found to be a recurrent factor in top management commitment (Guha, et al., 1997; King and Teo, 1996). According to Ettl (1998), human, technological, budgetary capital, the full time support of top management and the updation of knowledge of managers & employees about the ongoing system and process changes can be ensured by formal training and regular assessment sessions.

The workforce is a vital part of business information system and It is necessary to integrate the employees into the new business processes (Orlikowski and Hofman, 1997; Powell and Dent-Micallef, 1997). An enthusiasm for ERP can be generated through early employee participation in the ERP system and procedure design and all levels including top-down as well as cross-functional departmental communication. The issues and concerns regarding the dissatisfaction of work force must be discussed early on and steps taken to address them (Guha et al., 1997; Orlikowski and Hofman, 1997). Eid and Abbas (2017) conducted a research to assess the user adaptation indicator of post-implementation ERP and the benefits of ERP systems to end users. The research also looked at the moderating impact of user interaction with the ERP program and user adaptation relationships with user gain effectiveness / efficiency.

ERP Failures

All these do not mean that ERP could be a panacea for all-round success. Over emphasis on future unknown plans could lead to absolute failures (Sulphery, 2020). ERP

implementation failures have been reported worldwide and the reports regarding the same are explained below:

- Several ERP systems still face opposition and, in the end, a disaster (Aladwani, 2001)
- In US firms, the failure rate is in between 50 and 70 percentage. One another recent survey by Umble and Umble (2002) described that around 65 percent of officials opined that there are reasonable chances of disturbing / damaging the firm by ERP.
- Rasmy et al., (2005) estimated that many ERP's failed without completion.
- Later, Muscatello and Parente (2006) estimated the failure rates of up to 50% in all ERP implementations.
- Wang et al., (2007) also states that 70% (approx) of ERP implementations do not deliver expected benefits / outcomes.

There are many ERP implementations that could not bring the expected results and even resulted in project abandonment (McNurlin and Sprague, 2002). It is also noted a very prominent observation that the duration and budget of ERP projects are exceeded than the preliminary estimates, and also the opportunity of the implementation is restricted than planned. (Parr and Shanks, 2000). Umar, Khan, Agha, and Abbas (2016), also pointed out that ERP project faced either complete failure or partial failure.

It is also noted that one of the foremost issues faced by the end users of ERP is its mismatch with their current systems in use and vendors tries to fix end user issues. The primary purpose of ERP is bringing together the corporate knowledge and business processes by integrating an combined database, code set & user interface (Crisostomo, 2008). It is also reported that ERP took extensive period for its implementation process and exceeds the actual budget (Mabert et al., 2000; Ehie and Madsen, 2005).

Chung et al., (2008), Shehab et al, (2004) and Hallikainen et al., (2009) are of the opinion that execution of ERP systems is having the characteristics of complexity, difficulty, time-consuming and expensive. They have also opined that the complexity decreases its usefulness and makes end users reluctant to use and work with the system. Chung and Snyder (2000) calculated that implementation of ERP would usually take a few months to years for businesses pursuing significant changes / modifications. There are chances of changes in the software and user requirements during this long transition phase and the technicians must adjust with modifications (Mendel, 1999; Ehie and Madsen, 2005). There are also risks, however, of hindering the internal integration of ERP systems if a organization switches an ERP kit (Shehab et al., (2004); McAdam and Galloway, (2005); Chung and Snyder (2000).

Yourdon (2010) states that large ERP implementations in organizations can lead to forced failures of ERP. The recovery will come from the risk management process which is a part of quality management in some organizations. The risk areas must be identified and eliminates these areas from the implementation route. The implementation team has nothing to do with the risks associated with ERP implementation. However, implementation risks are sometimes arising from outside the project and not always project related.

According to Bingi et al, (1999); Hayes et al, (2001); and Mandal & Gunasekaran, (2003), there are many deficiencies even in large companies which have ample resources to prepare and execute properly, carefully. One-third of ERP implementations are reported to have either failed or failed to meet their intended goals. Sarkis and Sundarraj, (2003) was of the view that the introduction of ERP entails a significant expense. According to Bhatti, (2005) the reasons for failures are lack of support from upper management, opposition of staff, bad choice of ERP vendor & packages, negligible outcomes etc.

The biggest obstacle in the transition of new business processes is organizational shift (Kumar et al., 2003) and is accounted as a major factor for the downfalls (Al-Mashari et al., 2003; Khawk, 2006). Huang et al., (2004), mentioned on the obstacles to the implementation of ERP and the hurdles must overcome before the ERP goes into service. The hurdles must be overcome in proper time, so that barriers do not become danger drivers.

Even the administrators seem to underestimate the efforts to handle change and this causes failure of ERP projects and achieving their expected objectives (Somers et al., 2003). ERP systems impact any functional area of the company's basic, economic, and systemic modifications (Al-Mashari et al., 2003; Brown and Vessey, 2003). The employees must be prepared for these changes such as fundamental, cultural, structural and otherwise the implementation can result in failures (Umble et al., 2003). In this respect, a careful attention by management is essential in formulation of ERP systems with end-user satisfaction. Martin (1998) estimated that 90% of ERP implementations implemented late and surpassed the target and only partial implementation could be accomplished by 40%. Trunick, (1999) notes that approximately 20 percent are scrapped prior to completion, resulting in complete disasters. Davenport, (2000b); Larsen and Myers, (1999); Schneider, (2000); and Scott, (1999) have also found that many ERP's could be viewed as failures.

Challenges in ERP Implementation

Davenport (1998), stated that reasons for ERP letdowns are due to technological problems, but these are not the key reasons for program failures in the enterprise resource planning. He stresses that the greatest issues are business issues, and that most businesses do not match the technical essential elements of the ERP program with the real needs of the organization. Later, according to Soh et al, (2000), the key challenge in implementing ERP would be to define the differences between the ERP interface and the organization's actual requirement. Kogetsidis et al., (2008) states that one of the main problems with implementing the ERP program is not fully knowing the true meaning of what organizations want and not supplying the project with the right tools..

Cissna (1998) pointed out that, one of the foremost reasons for creating problem in ERP implementation is the resistance to modification and importance in minimizing the problems associated with ERP implementation by factors such as the involvement of top management, the appointment of appropriate staff and the clear participation of employees within the company. Other problems about implementation are the unexpected cost related with new demands coming after finalizing the plan of ERP and Limited training of system end users who don't know how to use it and keep it constantly for the future. Koh et al. (2006) also explained this aspect in his study There are also some other common issues related to implementation of ERP (Al-Mashari, 2003; Kamhawi, 2008).

Soh et al. (2000) found out that the mismatch between ERP features and specifications by the company is a general issue when choosing an ERP software. A study by Shehab et al., (2004), Esteves and Pastor (2001) and Botta-Genoulaz et al., (2005) also described that ERP functionality often mismatch with actual business requirements. According to Johansson and Sudzina (2008), there is a difference between the ERP package's functionality and the actual functionality needed by the organization. It can be termed as “misfit”. Hence ERP can be considered as a system in which either the firm where it is used need to change or the implemented ERP system need to adjust for achieving a successful implementation and desired result.

Long-run ERP systems were also supposed to reduce the cost. But the costs were projected to be large in the short term because of the expense of implementation and training involved. It is recorded that several businesses have been succeeded in reducing prices by bettering the core business where ERP is effectively applied &there is no misfit between the system and the client. However, even these successful firms are also affected by inflexible and rigid nature of the software. ERP software induces process improvement

which results in creativity. It often cuts costs, and those changes also impact all areas of the business. To achieve the high degree of data integration, the company must adjust its fundamental practices and processes to suit with the software. ERP programs have gained greatly and are lacking in versatility. The challenge is to keep the benefits of ERP systems at low cost and flexibility to accommodate changes in all levels (Lindley, et al., 2008),

Aloini et al., (2007) highlighted that the ERP applications may be inconsistent with the requirements and company procedures. The result is that after its introduction, the software update is costly and major costs will be high in the repairs or reshape of the company processes to suit ERP (Aloini et al., 2007). Verma (2007) pointed out that works that are out of reach can also result in a lot of variation, which in effect can result in project disasters. Aloini et al., (2007) also stress that the personalization and adaptation of tools in ERP, which happens when it is not adequately planned may also leads to problems. Shehab et al., (2004), Davenport (1998) and Sumner (1999) also stressed that customization of ERP software packages cause several problems in organizations. Laukkanen et al., (2007) pointed out that the heavy customization of ERP system implementations may cause to last the implementation process to a long term in large companies.

Huang and Yasuda (2016) conducted a survey to investigate ERP research phases and aspects in recent years. The study divided the found literature in three phases: pre-era of implementation, present status of implementation and post era of ERP. By examining the data, the implementation has lesser attention that pre-implementation and implementation phase. Further, in the post-implementation phase the topics under discussions with more attention are: Critical success / failure factors, real benefits, business process reengineering, ERP selection criteria, ERP impact, change management, implementation strategy and system/organization performance evaluation at organization level and user satisfaction with less attention. However, none of the studies focuses on user performance with ERP context, thus making this area worth to explore.

Future of ERP

According to Jaiswal, (2007), the ERP implementations are less utilized among SME sector of Industries. Kale, et al., (2010), explained that the Indian small and medium enterprises are confused and uncertain about ERP implementation. The productivity and value-added enhancement in Indian manufacturing companies is done with the help of communication technologies. Research have shown that spreadsheets are used by about 25 percent and about 50 percent using their own software. And around 15 per

cent adopted ERP's. Another 10 per cent uses normal production planning techniques. But yet in the global context, ERP is seen as one of the prime ways of gaining competitive advantage in market and reengineering processes, and is thus becoming increasingly common practice in the small and medium-sized enterprise (SME) field (Gable and Stewart 1999).

According to Koh & Simpson, (2005) and Petroni & Rizzi, (2001), earlier, ERP systems focused only on big enterprises due to technological and economic factors/restrictions. However, the ERP now taps the large untapped SME sector and specially designed and updated In this sector ERP systems or models of ERP suppliers are being introduced.

Conclusion

ERP aims to incorporate info and processes inside and across all the divisions of the enterprise. This is particularly very useful in large organizations with multiple units and operations. Traditionally, ERP systems are meant to aid users to accomplish integration of information in the back side operations (Kumar and Hillegersberg, 2000). But the purview of ERP has been widened now and it can act as platforms to link the company's entire operations and also integrate other enterprise applications. Some such applications that can be integrated include supply chain management (SCM), customer relationship management (CRM) systems, used in the company (Kalakota and Robinson, 2000). The utility of ERP is so vast that it is now sought to be implemented across industries. Its importance has made management experts and researchers to focus on this aspect. There is ample scope for advance research exploration of this topic on diverse dimensions and perspectives. The present work is a humble effort in this direction. It is expected that more scholars and management experts will be stimulated to do further works in this area.

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