

Challenges in Managing the ERP Implementation: Case Study on User Requirement Stage

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Abstract. Since the early 1990s, many organisations around the world have shifted their information technology (IT) strategy from developing information system in-house to purchasing off-the-shelf software, such as Enterprise Resources Planning (ERP) system. Organisations decided to invest on ERP system due to the pressure to cut costs, pressure to produce more without increasing cost, and improve the quality of services or products for business sustainability. ERP relies heavily on database in order to store and retrieve large amount of data. It includes financial management software that integrates information related to finance, manufacturing, sales, services, customers, among others. Previous research shows that not all organisations have successfully implemented an integrated system across business activities that would impact the revenue or liabilities of the organisations in a single package. However, numerous studies mentioned the success of ERP in improving the productivity and efficiency of the company performance. Despite that, there are still factors that account for failure of ERP system implementation, such as poor planning, management changing the business goals during project, and lack of business management support. In a case of an education provider firm that is in the process of implementing an ERP system, problems are foreseen in terms of communication breakdown between the vendor and the user. Drilling in the challenges of ERP system implementation in the case organisation, this research intends to apply the concept of Get-Understand-Share-Connect (GUSC) Model, which is derived from the personal knowledge management framework, to formulate the issues pertaining to the delay in finalising the user's requirements of the system – the stage where the root cause happens. In the focus of user's involvement in ERP system implementation, the users' and vendors' 'personal knowledge' are being investigated, since the gap is found to exist between the two. This paper presents the preliminary findings on the challenges of implementing an ERP system in a Malaysian company, by using the GUSC Model to unfold the root cause.

Keywords: Enterprise Resources Planning (ERP), business management support, personal knowledge management, GUSC Model.

INTRODUCTION

Early 1990s, many firms around the world have shifted their information technology (IT) strategy from developing information system in-house to purchasing application software, such as Enterprise Resource Planning (ERP) systems. Globally, many organisations have decided to invest on ERP system implementation for many reasons, such as to cut cost, due to pressure to produce more without increasing cost,

on top of improving the quality of services or products in order to stay in business. Additionally, ERP systems can be considered the most important development in the corporate use of information technology and are beginning to be the backbone of organisations.

ERP is a type of system that relies heavily on databases in order to store and retrieve large amount of data. It is a commercial software package that enables the integration of transactions-oriented data and business functions throughout an enterprise (Goni et al., 2011), from financial, manufacturing, sales, services and customer relationship management to other business activities that will impact the organisations revenues and liabilities. However, numerous studies showed that not all organisations are successfully implementing ERP in improving the productivity and efficiency of the company (Supramaniam & Kuppusamy, 2010). According to Legare (2002), the failure rate of ERP implementation is from 40 percent to 60 percent, but the companies would still like to try implementing this system because it is absolutely essential for responsive planning and communication in financial management. Dixit and Prakash (2011) stated that a lot of studies state that ERP implementation takes many years to complete and sometimes will run from the required time frame. It will require a large amount of IT investment and their effectiveness is hard to evaluate (Dixit & Prakash, 2011). Due to the importance of implementing the ERP system in the organisations, this research intends to apply a model by observing the challenges in managing the ERP implementation in a Malaysian organisation.

Problem Statement and Research Objectives

Currently, ERP vendors have developed and customised ERP software according to the user requirement, in order to fulfil the needs for various industries. However, vendors are still facing problems when there is a high demand on the use of ERP among business entities to integrate with each other, resulting in maximising the vendors' resources. Education industry would also like to benefit from the implementation of ERP, for better management. One of the private universities in Malaysia plans to implement ERP system, but there is always an issue during planning stage that causes the implementation project to overrun the original deadlines.

This ERP implementation project is mainly having a problem during the preparation of the documents. Even though the user and vendor have already discussed the requirements of the system, the vendor did not analyse the input the same way as what the user expected. This happens when the user and the vendor have different ways of understanding the system and the process flow of the user's department. Once the project is delayed in the timeline, it will be inaccurate in terms of cost, because there is a need to pay extra for the manpower.

This research proposes the use of GUSC Model (i.e. a model postulated on personal knowledge management processes) in analysing the challenges of implementing the ERP system in Malaysia, at user requirement stage. It is foreseen that the management of personal knowledge is the main reason for the delay in ERP implementation at the case organisation, since the understanding of the user requirement takes too much time and effort by both sides. In order to achieve this aim, the research objectives are as follows:

- i. To identify the root cause of delay at planning stage of ERP implementation.
- ii. To critically evaluate the communication between user/client and vendor, during the user requirement preparation.

iii. To formulate the scenario of pre-implementation of the ERP system that explains the situation at user requirement stage.

RELATED WORKS

Enterprise Resources Planning (ERP)

According to Supramaniam and Kuppusamy (2010), Enterprise Resource Planning (ERP) system is currently in high demand among Malaysian companies, especially those in manufacturing and service based industries, because it provides an effective management system leading to significant improvements in productivity. This is supported by Markus et al. (2000), who stated that an ERP system is a set of customisable and highly-integrative real-time business application software modules sharing a common database and supporting core business, production and administrative functions. The administrative functions include logistics, manufacturing, sales, distribution, finance and accounting. However, companies that are structurally complex, geographically dispersed, and culturally vibrant tend to present unique challenges to ERP implementation (Markus et al., 2000).

Beath (2000) stated that ERP system is already improved and it is also integrated with back and front end office operations seamlessly. The primary operation of ERP is information technology, which will help in the integration of numerous operations, applications and processes owned by different companies. In addition to that, it is not just about enabling efficient communication between network and protocol, but also on the integration of business process, company policies and organisational structure. (Kumar & Hillegesberg, 2000).

Enterprise resource planning (ERP) is a type of software for business management, in which a company can use for collecting, store, manage and interpret data from many business activities. In the addition to that, ERP system is almost a complete management system because it also has human resources module and customer relationship module (Pang, 2001).

A lot of organisations choose ERP because of the changing business trends in globalisation, merging and acquisitions that demand companies to have the ability to control and coordinate the increasingly remote operating units (Hong & Kim, 2002). ERP system can help to achieve this by enabling the sharing of real-time information across departments, currencies, languages, and national borders (Supramaniam & Kuppusamy, 2010).

Regardless of the success rate and benefits of the ERP system, there are some issues in implementing the system in a company, with “challenge of increasing competition, expanding markets and rising customer expectations” (Jafari, Osman, Yussuf & Tang, 2006). In addition to top management commitment and support, clear understanding of strategic goals and objectives, IT staff support, ERP teamwork and composition and other organisational factors, recent research include user involvement and educational level of the project team and end-users as part of the critical factors for ERP implementation in Malaysian small to medium enterprises (SMEs) (Goni et al., 2011). Apart from the project external factors and organisational factors, the challenges covered in this paper are mainly focused on the internal factors within the ERP implementation stages.

Challenges during ERP Implementation

One of the critical problems in ERP implementation is lack of human and financial resources to support the initiatives. Besides that, a lot of companies in Malaysia are facing communication problems in dealing with the ERP vendor when they want to implement ERP system in-house. Markus et al. (2000), state that there are three main factors that account for failure of ERP system which are: poor of planning, management changing the business goals during project; and lack of business management support.

In relation to the three factors stated by Markus et al. (2000), the critical challenge in ERP implementation has been focused to be firstly in identifying the gaps between the ERP generic functionality and the specific organisational requirements (Soh, Kien & Tay-Yap, 2000). In most cases, “ERP adopting companies fail to understand the business requirements which the ERP systems are expected to solve” (Ehie & Madsen, 2005). From a research study by Kumar, Maheshwari and Kumar (2003), a respondent stated that the ability of the business users to aid the configuration process was limited, whereas meeting user requirements satisfactorily was a challenge as while the implementers understood the systems, they could not comprehend the business needs.

Overall, the ERP implementation project road blocks that are related to this paper include the following (Kumar, Maheshwari & Kumar, 2003):

- Difficulties in changing to new from old system (50%)
- Unavailability of skilled project people (42%)
- Turnover of key project persons (42%)
- High costs of implementation (42%)
- Difficulties in estimating project requirements (42%)
- Unclear strategic direction and vision for the use of ERP (25%)
- Knowledge gap between implementers and users (25%)
- Incompetent consultant (8%)

At times, project schedules were revised due to many reasons, adding to the challenges in ERP implementation. Among the reasons for the revision in schedule include: underestimated work volume; took too long in business process reengineering (BPR) and development activities; unrealistic project schedule; one round of parallel run; and decided midway to roll one module later (Kumar, Maheshwari & Kumar, 2003). The process of understanding the user requirements focuses on BPR and knowledge of user needs in the ERP system (Schniederjans & Yadav, 2013), identified as a key in ERP implementation.

Despite the numerous past literature on the importance of user functionality to the application of information technology, very few have provided a theoretically driven conceptual model that depicts the various aspects of user requirements and how they impact, specifically, ERP implementation success (Schniederjans & Yadav, 2013). It is stated that “many of the organisations that implement ERP do not have the fundamental processes and structure required for the types of information provided by the ERP system” (Dezdar & Ainin, 2011).

In spite of the promises that ERP would benefit companies and a substantial capital investment, not all ERP implementations have successful outcomes. Ehie and Madsen (2005) stated that ERP implementations have delayed an estimated schedule and overrun an initial budget. Adding to this, ERP implementations have sometimes failed to achieve the desired outcomes of the organisation, with research reported failures of ERP implementations caused by high degree of complexity from the

massive changes ERP causes in organisations (Madininos, Chatzoudes & Tsairidis, 2012). In supporting this, the top ten risk factors causing ERP implementation failure as reported by Huang et al., 2004) include:

- Ineffective communications with users
- Failure to get user support
- Composition of project team members
- Failure to redesign business process
- Misunderstanding of change requirements

A few research covered the ERP implementation issues in institutes of higher learning (IHLs), stating that it is challenging and the outcomes are unsatisfactory (Mehlinger, 2006), partly because ERP was initially designed for corporate organisations. “Even though there are numerous customisation options, these options come with the risk of failure with the increase of scope of work and cost of implementation, resulting in the delay of implementation schedules (Seo, 2013), hence providing a gap in research to critically investigate on the root cause of the ERP implementation challenges in IHLs.

GUSC Model in Personal Knowledge Management

Looking at the aspect of understanding and having the same agreement on the user specification requirements between two different parties (i.e. user and vendor), it is found that the concept of personal knowledge management (PKM) can be applied to further analyse the case scenario. PKM is derived from the domain of knowledge management (KM), due to the importance of ‘people factor’ in achieving organisational goals (Ismail et al., 2012). It is argued that “organisations cannot manage knowledge on its own without the initiatives of individual knowledge workers and the interactions within groups of these individuals” (Ismail et al., 2012), hence the proposed PKM models since the past five years, mainly on the processes performed by knowledge workers, such as categorising, making explicit, retrieving, exchanging and contributing knowledge (Jarche, 2009).

From the domain of PKM, the GUSC Model was proposed and postulated by Ismail and Ahmad (2011) on the four main PKM processes: get or retrieve knowledge (G); understand or analyse knowledge (U); share knowledge (S); and connect to knowledge source (C). In the context of KM and the explicitness of knowledge, knowledge workers would get/retrieve knowledge that has been converted from tacit to explicit form, understand/analyse explicit knowledge and convert it in tacit form, share knowledge as understood by them in explicit form, and connect to other knowledge source or workers by making contacts or discussions to transfer tacit knowledge (Ismail et al. 2012).

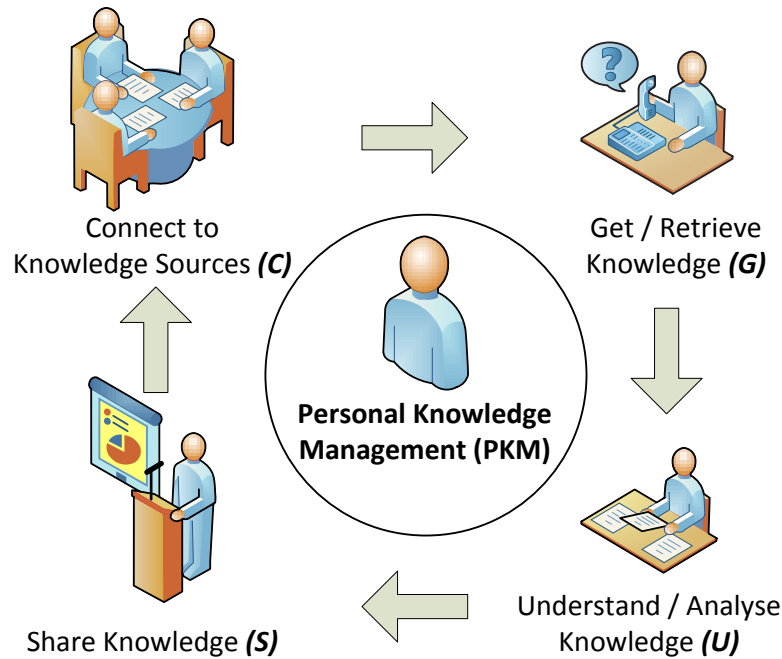


FIGURE 1. GUSC Model on PKM Processes

Figure 1 shows the overview of the G-U-S-C processes, based on PKM model by Ismail and Ahmad (2011). The GUSC Model has particularly focused on the PKM processes in the Malaysian working environment (Ismail & Ahmad, 2015). The model is covered and applied in other research, such as smart notification system (Ismail, Mohammad Suhaimi & Ahmad, 2013), social network analysis (Ismail et al., 2014), smart classroom (Ismail & Ahmad, 2013), and knowledge expert locating system (Ismail, Nguyen & Ahmad, 2013), proving the use of GUSC Model to solve the communication breakdown in organisations. Seeing this potential, this model is chosen as a tool to analyse the challenges of the ERP implementation in the case organisation.

METHODOLOGY

An exploratory study is conducted on a case group in a private university in Malaysia. This private university has a subsidiary company that acts as the commercial arm for generating side income for the university. This subsidiary is known as a resource management company because it has its own process flow and resources, and also ideas to generate the income for the company. This resource management company has handled a few projects, such as shipping, airplane, frozen food, software system and ERP implementation. Not only that, it also acts as an intermediary for supply of equipment to the clients. This subsidiary company hires other companies as vendors to supply the equipment to the end users.

This research studies the environment between the user and the vendor. In the case of ERP implementation, it is found that the private university is considered as the user to its own subsidiary, whereas the subsidiary becomes the vendor. This subsidiary hired a Microsoft partner company in Malaysia, specialising in Microsoft Dynamics AX, to assist in implementing the ERP system in the university.

In this case study, the finance management department of the private university would like to upgrade the existing financial management system by implementing the

ERP system to better manage the business and finance operations. In the initial process of the implementation, the users from the finance department explained the financial business process and their requirements to the vendor. The vendor then recorded the user requirement to analyse and describe the business needs as what the users required.

It is a challenge to get an understanding between the user and the vendor because of the different technical languages between them (i.e. ERP system and finance management terminologies). Besides that, the vendor is also having a challenge to assemble the main people in charge for that module, and it is difficult to reschedule the meeting with user (i.e. a team) when one or two could not make it in the first scheduled time. In order to understand the root cause of the problem, the respondents' personal knowledge management (PKM) is analysed. The GUSC Model is chosen as the PKM tool due to its simplicity and ease of application on the case scenario.

In utilising this model, the processes of get knowledge (G), understand knowledge (U), share knowledge (S) and connect to knowledge source (C) are analysed. From the analysis, the root cause is presented in conceptual diagrams, as challenges in ERP implementation at user requirement stage.

PRELIMINARY FINDINGS

The overall view of the case scenario is illustrated to show the factors or root cause of the challenges at user requirement stage in ERP implementation. It is found that the user has high expectations on what the ERP system could do for them in facilitating the business process, whereas the vendor perceived that the implementation would be easy due to the technical knowledge they have. These two factors are shown in Figure 2, on arrows that connect the user to vendor and vice versa.

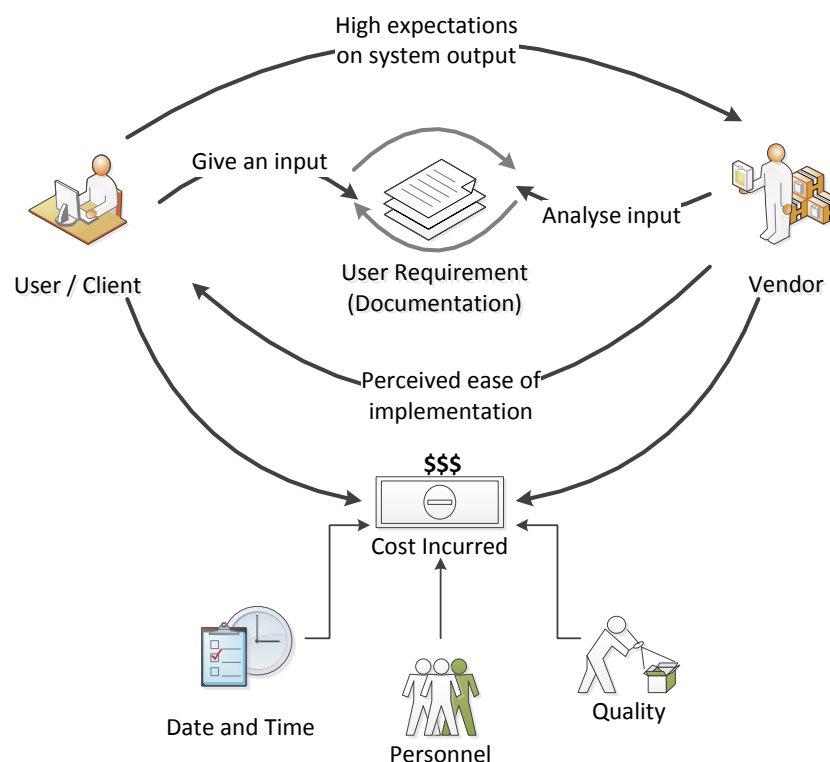


FIGURE 2. Overview of challenges during user requirement stage in ERP implementation

The initial stage of ERP implementation starts with both user and vendor going through a 'requirement process', in which the user/client would list down the project scope and main processes to be aligned or covered in the ERP system. At the same time, the vendor needs to provide detailed explanation of the ERP system to the user/client, to ensure that the latter could visualise on the suitable process to be implemented in the ERP system.

In this case study, the user/client shares the information on the finance management process with the vendor. Once the information is received from the user/client, the vendor would analyse the process and translate it into ERP-implementable structure. The vendor would go through the information gathering process more than once until they could come up with the requirements document. The requirements document would produce a result that would be perceived as easy to be implemented, but the vendor's perspective would be wrong because they usually do a random gathering of information in the business concept, not in the financial process of the target organisation. The user, on the other hand, expects highly on the vendor's capability to fulfil their needs on the system, without realising that they also have issues in communicating the information unfit for the system (i.e. the system may not be able to cater for the process) and depending highly on the vendor's technical knowledge.

As shown in Figure 2, the user/client provides input in meetings and discussions with the vendor during the user requirement stage and document preparation process. This input is then analysed by the vendor, for them to include in the user specification requirement document. Once a draft is prepared, the user/client would review the document to see if the requirements stated by the vendor are as what they expected. Feedbacks on improvement on the document are then conveyed to the vendor for another round of revision on the user requirement document. This cycle is iterative until a point where both parties agreed on the content of the document (shown in Figure 2).

When the information does not fit the user's needs, it causes the project to overrun its original scheduled deadline. This iteration of (user's) input and (vendor's) analysis caused delay in progress of user requirement stage, especially when the duration overruns the target date of delivery. In other words, the vendor would need longer time to complete the documents, affecting more man hours in ensuring the system output will qualify the user's requirements.

It adds to the complication when the vendor finds difficulty to arrange a meeting with the user after one meeting, since the user has to attend to the usual daily works (e.g. finance operations, department meetings). The user too would need to sacrifice their normal working hours to re-explain to the vendor on the finance operation process until the vendor is clearly understood enough for a more accurate document preparation.

As illustrated in Figure 2, the overall result from the challenge at user requirement stage is cost incurred, because extra time and extra working hours by manpower cost money. In addition to that, the quality of the document and the ERP system will also be jeopardised if the final deadline of implementation remains unchanged or the document is not fully finalised on time. This result is shown in Figure 2 as three different factors of cost incurred: date and time; personnel; and quality.

DISCUSSION

Interesting patterns of get, understand, share and connect processes are suggested to unfold the root cause of ERP system implementation issues. This illustration is as shown in Figure 3, on an overview of GUSC process these processes between user and vendor.

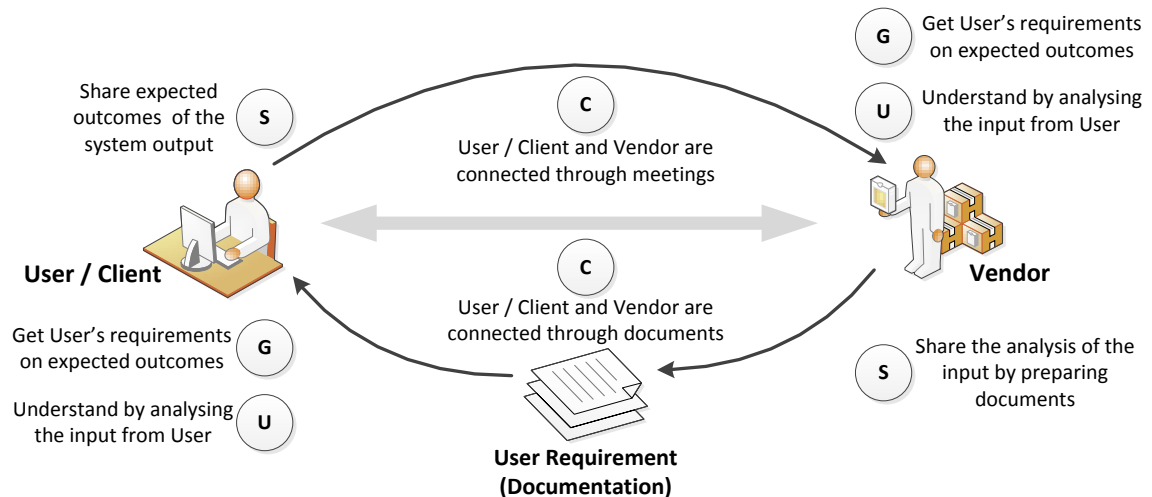


FIGURE 3. Overview of GUSC processes in user requirement stage

Figure 3 reveals that the user (i.e. the main user with the capability, knowledge and experience in the process) shares (S) the information on the finance operation processes to the vendor as expected outcomes of the system output. Apart from information on the finance process, the user may also explain on case scenarios or examples on real situation that may happen in the process, for the vendor to clearly understand the process. The vendor gets (G) the information on the process and understands (U) or makes sense of the information by critically analysing it and writing it down in the document. During these S, G and U processes, there is a connection (C) made between the user and the vendor, through meetings, discussions and presentations.

In completing the communication loop, the vendor would share (S) the requirement document, which is prepared based on the analysis. Once the document is ready, the vendor would normally share it by submitting the document for the user to review. The connection (C) is made here through the document submitted by the vendor to the user. The user gets (G) the requirement on the expected outcomes discussed earlier in the meeting. The user needs to understand (U) the document by analysing, reviewing and commenting on it. This process is required to ensure that the document states clearly and accurately as what the user expects of the system. In other words, the user needs to understand whether or not the ERP system implementation will achieve the outcome as requested.

CONCLUSION AND FUTURE WORK

This paper discusses the preliminary findings on an exploratory study of challenges in ERP implementation at user requirement stage. While this paper discusses the issues using a PKM model, the model is used only as a tool to facilitate the investigation and evaluation of the challenges in the case organisation. Overall, this

paper has identified the root cause of delay in planning stage of ERP implementation by illustrating the scenario (as shown in Figure 2), presented the evaluation on the communication between user/client and the vendor and formulated the scenario of pre-implementation of the ERP system (as shown in Figure 3).

It is observed that the knowledge management at personal level on user/client's and vendor's sides is vital in performing quality documentation within the scheduled timeframe, hence reduce unnecessary costs. This will require more research on how the knowledge on the user requirement can be well managed at the planning stage of ERP implementation, in which the PKM model can be applied and used as a measurement tool to ensure that the project can run smoothly from the start.

Having said this, the future work will see through a proper methodology, such as survey, to quantitatively and/or qualitatively collect and analyse data on various users/clients and vendors. The variables to be analysed will be formed from the factors of challenges derived from this study, which highlights the contribution of this paper.

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