

**CRITICAL FAILURE FACTORS FOR ENTERPRISE RESOURCE PLANNING (ERP) IMPLEMENTATION: A CASE STUDY ON SME IN SABAH, MALAYSIA**

Sharifah Milda Amirul *, Kyle Rashidy Aliman, Pheobe Chang Hui Yan, Nursahirul Kadir, Liew Jin Ching, Mhala Sri A/P Sriramuloo

Accounting Center, Faculty of Business, Economics and Accountancy, Universiti Malaysia Sabah, 88400 Kota Kinabalu, Sabah, Malaysia

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Abstract

This study attempts to analyze the Critical Failure Factor (CFFs) for Enterprise Resource Planning (ERP) system implementation in one of the small and medium enterprises (SME), located in Sabah, Malaysia. Enterprise A has been chosen where the case study is applied to better understand how this firm has implemented its Mind Your Own Business (MYOB), a computerized accounting system software as its ERP system. The case study is carried out based on four phases as suggested by Ganesh et. al 2010 which are (i) planning, (ii) implementation, (iii) stabilization and (iv) improvement. The results show that, lack of communication within the firm during initial stage of project implementation, lack of information system knowledge and lack of vendor supports while implementing, stabilizing and improvise the ERP systems are the major failure factors for Enterprise A. Overall, the critical failure factors found in this case study are strategic failure, operational failure, interaction failure, and choosing the wrong vendor.

Introduction

Enterprise Resource Planning (ERP) is not new to business environment (Saqib, Arif, Nafees, Arshad and Fasee, 2012), and indeed it is an industry terms for the board set of activities that help organizations manage its business. ERP systems are described as computer-based information systems designed to process an organization's transactions and facilitate integrated and real-time planning, production and customer response. An important goal of ERP system is to facilitate the flow of information so business decisions can be data-driven. ERP modules can help an organization's administrators monitor and manage supply chain, procurement, inventory, finance, product life cycle, projects, human resources, customer relationship management and business intelligence (D.O'Leary, 2000).

Although implementing and adopting ERP would give many benefits to organizations, however, the ERP adoption is lower than expected, especially in the case of Small and Medium Enterprises (SME) in Malaysia, particularly in Sabah. It seems that ERP implementation has been one of the challenges for organization during the last decade, and there have been many barriers in implementation ERP successfully (Shirouyehzad, Dabestani, & Badakhshian, 2011). In fact a lot of discussions, research findings, and literatures have been documented covering wide range of issues related to critical success and failure factors of ERP implementation, (see for examples Ehie, I.C. and Madsen, M., 2005; Ganesh, L. and Mehta, A., 2010); Garg, P., 2010; Amid, A., Moalagh, M. and Ravasan, A.Z., 2012; Umble, E.J., Haft, R.R. and Umble, M.M., 2003).

Nevertheless, as far as critical failure factors (CFF) for ERP implementation is concerned, less attention has been given to examining the CFF for small and medium enterprises (SME), mainly in Sabah. Therefore, this study is proposed to answer the research question on "what factors contributes to the failure of ERP implementation in SMEs?". According to SME Corporation of Malaysia, an SME is an enterprise with full-time employee not exceeding 150 or with annual sales turnover not exceeding RM25 million in manufacturing, manufacturing related services and agro-based industries, or enterprises with full-time employees not exceeding 50 or with annual sales turnover not exceeding RM5 million in any industry especially



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in manufacturing industry (Anon, 2015). Significantly, these SMEs are the backbone of Malaysian economics, thus, knowing the difficulty in executing ERP amongst SMEs should be of interest, as the business efficiencies and effectiveness of the SMEs will eventually result in high performing business which consequently contributes to the economics growth of the country resides by the SMEs. Hence, the objective of the study is one fold that is to examine the critical failure factors ERP implementation in SME, particularly in Sabah.

This study is noteworthy as it enhances the existing literature on critical failure factors for ERP implementation from developing country setting, of which the economics is driven by the small and medium enterprises (SME). Besides, since this study is conducted based on a case of single enterprise, thus it provides deep analysis and the findings is richest that is believed valuable to CFF literature. This paper is organized as follows; first it gives overview on the background of selected enterprise where the case study has been carried out. Secondly it reviews the past literature on CFF. Next, the paper presents discussions on research methodology and case analysis of the study. Last but not least, the paper provides summary on the CFF with a discussion and conclusion as well as direction for fur future research.

Background of Enterprise

Enterprise A is a business mainly involved in supplying t-shirt printing materials including pigment dye, ink remover, ink hardener, pigment ink, rubber dye, 3G dark paper, binder, photo emulsion, white mug, table glue, sublimation transfer paper and squeegee. It also supplies the product to others shirt printing enterprises such as silkscreen which is used for t-shirt printing. There are eight enterprises under Enterprise A including its headquarters with overall employees of 24 persons and these enterprises are located in Kota Kinabalu, Sabah. Enterprise A's vision is being the first choice supplier of goods printing which are cheap, readily available and innovate. The missions are to ensure the stocks can accommodate customer demand, provides packaging and labeling are in accordance with proper standards, diversity of products on request, continuously improve the system of stock and sales and lastly to have its own transmission panel. Recently, in year 2015 the enterprise had decided to adopt a computerized accounting system as part of its ERP system, which is Mind Your Owned Business (MYOB).

Literature Review

Past literatures have proven that, there is high failure rate (between 60 to 90 percent) in implementing Enterprise Resource Planning (ERP) (Ptak & Schragenheim, 2003) and that ERP implementation is a lengthy and complex process, thus resulting in cases of unsuccessful implementations (Shanks, 2010). Occurrences of few situations can be a signal for an information system failure (K. Lyytinen, 1987). When a system as a whole does not operate as expected and its overall performance is sub-optimal, this is a correspondence to failure of ERP implementation.

It is generally believed that designing goals and requirements must be specified clearly in advance, and that their achievements can be accurately measured. Expectations and needs of top management are specified and obtained during user requirement analysis. Thus, enable to establish pre-determined corporate goals (Al-Mashari et al., 2003; Umble et al., 2003; Yusuf et al., 2004) as a guideline for system requirement and implementation. The notion of expectation failure views ERP system failure as the inability of a system to meet its stakeholders' requirements, expectations, or values (Wong, Chau, Scarbrough, & Davison, 2005). Failure, therefore, does not only involve the system's inability to meet design specifications but rather perceived as the difference between the actual and desired situation for the members of a particular stakeholder group. Unlike the other notions, ERP system failure is considered holistic in this case, as the views of different stakeholders are taken into account.

Besides that, if the cost of the development exceeds any benefits the ERP system may bring throughout its useful life, the system is actually causing loss instead of value-added for the company. This is a process failure when an ERP system cannot be developed within an allocated budget or time schedule (Al-Mashari et al., 2003; Hong and Kim, 2002; Malbert et al., 2003). There are two likely outcomes of process failure. Firstly, an outright failure occurs when no workable system can be produced. Secondly, a more common outcome is when an information system is developed with massive overspending in both cost and time, thus negating the global benefits of the system. This is a project level failure which attributed to unsatisfactory project management performance.



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Another indicator of ERP failure is interaction failure. The level of end-user usage of the ERP system is suggested as a surrogate in system performance measurement (Ang 2002; and Yusuf et al., 2004). Some related measures of ERP usage include user attitudes and user satisfaction, the amount of data transferred or the frequency of use. However, heavy usage does not necessarily mean high user satisfaction and improved task performance, and there is little empirical evidence supporting such a claim. Heavy system usage might be a result of legal compulsion, persuasion, or that there are simply no other alternatives besides using the system. An ERP implementation is unsuccessful if the system is abandoned before it is completed due to problems with the complexity of the system, or the management of the project (Yeo, 2002).

Other than that, the IT literature has clearly demonstrated that for IT projects to succeed top management support is critical (Al-Mashari et al., 2003; Hong and Kim, 2002; Malbert et al., 2003; Umble et al., 2003; and Yusuf et al., 2004). Implementing an ERP system is not a matter of changing software systems, rather it is a matter of repositioning the company and transforming the business practices. Due to enormous impact on the competitive advantage of the company, top management must consider the strategic implications of implementing an ERP solution. Management must be involved in every step of the ERP implementation in leading the change and constantly monitor the progress of the project and also able to provide direction to the implementation teams. Otherwise, this may lead to strategic failure in ERP system implementation. Some companies make the grave mistake of handing over the responsibility of ERP implementation to the technology department. This would risk the entire company's survival because of the ERP system's profound business implications (Prasad Bingi, 1999). Intervention from management is often necessary to resolve conflicts and bring everybody to the same thinking, and to build cooperation among the diverse groups in the organization.

Apart from that, training and updating employees on ERP is a major challenge. Without proper training, about 30 percent to 40 percent of front-line workers will not be able to handle the demands of the new system (Koch, 1996). They need to understand how their data affects the rest of company. Some of the decisions front-line people make with an ERP system were the responsibility of a manager earlier. ERP systems are extremely complex and demand rigorous training. It is difficult for trainers or consultants to pass on the knowledge to the employees in a short period of time (Yusuf et al., 2004; Al-Mashari et al., 2003; Ang et al 2002; Malbert et al., 2003; Mandal and Gunasekaran, 2002; Umble et al., 2003). This "knowledge transfer" gets hard if the employees lack of computer literacy or have computer phobia.

Other than that, even though the price of prewritten software is cheaper compared to in-house development, the total cost of implementation could be three to five times the purchase price of the software. The implementation costs would increase as the degree of customization increases. The cost of hiring consultants and all that goes with it can consume up to 30 percent of the overall budget for the implementation (VK, 2014). Once the selected employees are trained after investing a huge sum of money, it is a challenge to retain them, especially in a market that is hungry for skilled ERP consultants. Employees could double or triple their salaries by accepting other positions. Retention strategies such as company perks, bonus programs, salary increases, continual training and education, and appeals to company loyalty could work. Yet, all these strategies costs the SMEs significantly in their operation.

Additionally, selecting a suitable product and right vendors are extremely important. Top management input is very important when selecting a suitable vendor. It's essential to choose the appropriate vendor, adequate scalability features, and user- friendliness of product depending on the size and structure of an organization. Project management related factors like clear goal and objective, effective project management, reasonable expectation, other department participation, change request, implementation strategy, data conversion, clear & effective communication are very critical for a successful ERP implementation. The high failure rate of ERP implementation is due to negative impacts such as business loss, dropping market price, losing both market share and competitive advantage (Dorsey, 2005).

Research Methodology

In this study we employed a case study approach to identify factors that hindering ERP implementation successfully. The criterion used to select enterprises in this case study was based on small and medium enterprises as stipulated by the Malaysian SMEs Corp (SME, 2015) and the enterprise has used ERP software. Data was then collected by conducting interviews, observations, and archival sources. Interviews were conducted with owner of the enterprise who was familiar with the system needed and the ERP implementation progress. The study also analyzed archival documentation which mainly from third major source of data used in



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the research as this provides guidelines in the process of data collection. For validating the data collection process, all evidences gathered and the case study narrative documented were given to owner for review. This review procedure was not only part and partial a formal procedure but also a courtesy to those who had cooperated with the research.

Case Analysis

The case analysis is conducted in Enterprise A, one of SMEs in Malaysia which is established in Kota Kinabalu, Sabah. The objective of the company for implementing an ERP system was basically for operational reason of which to make the enterprise more efficient in submitting the government service tax (GST) form. Besides, the management wanted to know about financial, production, logistics, and sales reports in faster way, so that the management can improve the time for decision-making. It has been installing Mind Your Own Business (MYOB) accounting software for almost a year. Nevertheless, according to manager, although the system is in-placed, yet the staffs are found not o fully utilized the system. Thus, we carried out our analysis on the process ERP system implementation in this Enterprise A based on four phases following Ganesh, L et al. (2010) which are; (i) planning, (ii) implementation, (iii) stabilization and (iv) improvement. The following provide the discussion for each process in Enterprise A.

(i) Planning

In this first phase of planning, it involves choosing the ERP package, scoping the project, formulating the system architecture, and approval of budget and schedule. The following provides discussion in relation to pre-implementation process in Enterprise A as below:

1. Lack of Communication

The initial system requirements for Enterprise A was trigger by the need of the enterprise to have financial data, production, logistics, and sales reports as well as for the purpose of government service and tax (GST) form submission. The owner realized that, without having a good computerized accounting system, it would be difficult to fulfill the Malaysian Custom Royal requirement in computing total GST payable, claimable, deferred and other tax treatment pursuant to the GST submission. Hence, the owner has decided to choose MYOB as its ERP system for accounting and this decision was solely made based on his friend recommendation. At this point of time, the owner, as the top management of Enterprise A did not try to promote the benefits of this MYOB system due to lack of knowledge and understanding on how the system works. Thus, exchange of an information, thought, and emotion between individuals in the enterprise were not occurred, therefore resulting in lack of support and understanding, especially from the project team members. The project plans should be communicated and supported by both the top management and project team members so that in providing the ERP infrastructure it would result in best designing and meeting the business capacity needs (Al-Mashari et al., 2003; Umble et al., 2003; Yusuf et al., 2004). Insufficient commitment by the top management to influence their employees could hinder the implementation process (user resistance to change and low user satisfaction) and thus unable to meet the users' expectation (Wong, Chau, Scarbrough, & Davison, 2005).

2. **Information system illiteracy.** The education level and knowledge about information system is quite low among the employees of Enterprise A. They don't have basic knowledge or idea on what is information system generally and what is ERP all about. This affects the ability of the management and the project team members to understand the scope of the system to be implemented and how much cost will be incurred including the cost of hiring the consultants as well as cost for employees training. This shows that, the management has difficulty in ensuring the system requirement is fulfilled by implementing the MYOB installation. At this point of time, the management of Enterprise A relies on the ERP consultants who are the third parties being hired to fill in the gaps in expertise and knowledge transfer. As such, the success of a project implementation depends strongly on the capabilities of the consultants because the consultant is the only one with in-depth knowledge of the software (Welti, 1999). They should provide expertise concerning project planning, ERP systems during ERP implementation (Brown and Vessey, 2003) which is in this case to Enterprise A. However, over



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reliance to the vendor in system implementation leads to another problem when there is insufficient support from the vendor throughout the process of executing the system.

(ii) *During Implementation Process*

The second phase of implementation is configuring and implementing the ERP software. This is where huge problems encountered by Enterprise A that causing the end-users have difficulty in using the ERP software. These problems occurred are discussed below:

1. **Ineffective communication between Enterprise A's management and the vendor.**

The communication was ineffective during project implementation due to knowledge barriers about ERP system between the management and the vendor. Due to lack of knowledge about business process, the ERP configuration was just copied directly and the vendor only suggest to workarounds without applying professional skills to conduct ERP system implementation. This consequently results in failure to bridging the gap between ERP systems and business processes of Enterprise A. Moreover, a detailed test plan and guidelines are not suggested to the project team. Significantly, during the implementation process, consultants do not conduct mapping analysis to map the software functionalities with business requirements, and this leads to a mismatch between ERP and business processes. The management also did not consider the systems testing exercises during the final stage of implementation process, as well as simulation exercises before the system goes live. Thus, the ERP system could not provide sufficient support for business as what expected by the management.

3. **Lack of Vendor Support.** During the implementation process of MYOB, the owner claimed that due to inferior quality of training provided by the consultants and insufficient education delivered to the top management and project team, users were not given a clear idea of the nature and use of the ERP system. User training and education can be considered as the third most important factor in generating ERP implementation failure because of one main reason: training is important in an ERP implementation project not only to give users to an early approach to the new ERP system but also to help in the organizational change process (Zornada, 2005). Getting individuals instructed/trained and keeping them educated all through the implementation procedure must be routed to achieve the benefits of an ERP system (Dorobăț et al., 2010). The consultants were found to be inexperienced in the use of the ERP system (as they tried to practice during training sessions), and they could not deliver professional ERP training to the users. Their training material and user documentation were found to be too brief and unhelpful by the users. Project team members mentioned that the knowledge transfer process was ineffective, and the project team members and project manager could not acquire sufficient knowledge or skills to use, maintain, and support the ERP system.

4. **High user resistance to change.** Zander (1950) defined resistance to change as: "Behavior, which is intended to protect an individual from the effects of real or imagined change". While, Zander (1950) has stated six primary reasons for resistance to surface if:

- i. The nature of the change is not made clear to the people who are going to be influenced by the change.
- ii. The change is open to a wide variety of interpretations.
- iii. Those influenced feel strong forces deterring them from changing.
- iv. The people influenced by the change have pressure put on them to make it instead of having a say in the nature or direction of the change.
- v. The change is made on personal grounds.
- vi. the change ignores the already established institutions in the group.

While implementing the MYOB system, Enterprise A stills outsourcing the accounting to Hasbi & Co to prepare all the accounts. Hence, the internal accountants which are the users of the MYOB system only use the MYOB as a reference for revenue transaction information. With the current practice of



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outsourcing the accounting to third party, it shows that the management of the firm is not fully supporting to use the new system. Additionally, poor quality of training provided by the consultants and insufficient education delivered by the top management and project team, where the users are not given clear idea of the nature and use of the ERP system, thus it further contributes to resistance to change among the employees. As they do not understand the rationale for implementing the ERP system or the process of implementation, it is unlikely that the employees will ever accept or support the change.

(iii) *Stabilization*

The third phase of stabilization occurs when implementation problems are fixed and organizational performance improves.

1. **Lack of vendor support.** After the MYOB system have been implemented in Enterprise A, the vendor did not periodically monitor whether the MYOB has been functioning well within the firm neither did the vendor provide continuous training and supports. Therefore, without good collaboration with the IT vendors, the successful ERP system cannot be actualized. The only way to study about the system was by self-learning and communication about certain problems via phone call. The vendor will only give explanation when their services are needed.
2. **High user resistance to change.** Ehie and Madsen (2005) stated that ERP implementation involves more than changing software or hardware systems. Ideally, by re-engineering business processes, ERP implementation can help an organization to benefit from higher levels of efficiency and improved performance. Nevertheless, the barrier in system stabilization occurred in Enterprise A whereby the the users' resistance to change s very high. This is proven when the users do not fully utilized the accounting software as MYOB is only being used for about 10% out of its functional. The possible reasons why they resist on using the system because those users have bad experiences with systems, such as confusing, incompetent to use the system and not even understanding how the system works. The users also resist because they do not like some features of the system as they argued that the system is too complex to be used. The users tend to prefer the old system and the old interface they have used to work with. Thus, it shows that system complexity may cause changes that lead to resistance among employees (Glover, Prawitt & Romney, 1999). Consequently, the management has to balancing the conflicts between staff and technology and effectively managing employees in the change process of stabilization, as this is one of the key elements for successful ERP implementation (Ash & Burn, 2003).

(iv) *Improvement*

Finally, improvement phase is achieving the benefits, updating new modules, focusing on continuous improvement and transformation. It may include handling of user requests and user training, the implementation of changes to the existing functionality of the system, and the implementation of patches and software updates provided by the ERP vendor (Ng et al., 2002). Nevertheless, post implementation of MYOB system in Enterprise A shows that, the vendor that supplies MYOB does not provide any further training for staffs continuous development in using the system, neither do the vendor helps the firm in system maintenance and updates. Additionally, despite of the firm's project team members have limited ERP knowledge, capability, and poor project management skills as well as are lack of ERP experience (including top management, the project manager, middle level management and operational staff), the firm itself never take initiative to hire its own IT staffs since Enterprise A focuses more on their operational activities. Therefore, the work for IT is not really needed and the management thinks that by hiring IT staff it will be just an additional cost to the firm.

Discussion

Based on the above case analysis, it shows that while Enterprise A has decided to install MYOB as its ERP system in respond to the need of GST filing and to have information in regard to its sales, procurements, financial, production, logistics and others. Nevertheless, the top management has failed to firstly understand



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how the system works and how it should be used so that the firm will be able to gain benefits by using the system to the fullest. A year after the MYOB has been implemented, the firm has never fully utilized the system as intended as the firm only uses the ERP system for sales and revenue record, therefore other potential used of MYOB have never been explored. One of the roots caused may be due to lack of plan communication within the entire organization during the implementation process. Suppose the top management of Enterprise A has communicate and disseminate info about the ERP system and implementation, it allows the organization's stakeholders to understand the goal and the expected benefits of the project as well as to share the progress of the project. In fact an "open information policy" protects the various communication failures for the project as delivery and good flow of information within the firm is one of the critical success factors (Al Mashari et. Al 2003). Expectation success occurs when IT systems match user's expectations.

Besides, knowing the fact that end user training is a critical success factor for ERP implementation (Bajwa et al., 2004) due to the complexity of the integrated ERP system, therefore end user training is essential for a robust understanding of how the system works and how to use it. Consequently, appropriate end user education and training will maximize ERP benefits and increase user satisfaction. Nevertheless, this does not happen in Enterprise A as the firm is having difficulty to get its staffs undergo training as there is no training support and knowledge transfer from the vendor. Significantly, it may be say that, Enterprise A have choosing a wrong vendor, as the vendor not only unable to provide sufficient training and support, post implementation service such as system updates and system maintenance are also not given the to the firm. It has been argued that choosing the right vendor is essential when a firm opts to buy software package rather than in house development and when there is over reliance on the vendor as a consultant the cost may go to 30 percent of the overall budget for the implementation (VK, 2014). Therefore, it is important for the project manager to effectively manage the consultants, for example, in evaluating their communication and training performance, when conducting ERP implementation, and when testing system performance. Top management and project managers need to ensure sufficient knowledge and expertise for ERP implementation before the start of ERP implementation. However, the top management of Enterprise A does not fully support the ERP implementation, in which there is no active participation from the top management during implementation process, neither does the top management take initiative to train nor hiring IT expert employees to ensure successful ERP implementation. Last but not least, another critical failure factor for Enterprise A when the employees are reluctant to change due to insufficient information, training and knowledge, therefore employees become resistant to use the new system.

Conclusion

The study uncovers the issues pertaining to critical failure factors (CFF) of ERP systems implementation in Enterprise A with the ultimate objective to examine the critical failure factors for ERP implementation amongst small and medium enterprises (SME), particularly in Sabah, Malaysia. The case analysis is conducted based on the four phases of system implementation from the perspective of Ganesh, L et al. (2010) which are; (i) planning, (ii) implementation, (iii) stabilization and (iv) improvement. Throughout the four phases involved in the process of implementation of ERP system in Enterprise A, the root caused for system implementation failure in Enterprise A can be seen at the early stage of system planning, where lack of communication in relation to system implementation goals and expectation, as well as lack of knowledge in information system have resulted the management and the employees in no clear idea nor an understanding on how the MYOB system will work and how would it be supporting to the need of the firm. Additionally, it turnouts that the management in Enterprise A also provides insufficient support and role play during the planning and designing the system required. As such the installation of MYOB has no clear objectives. This indicates a strategic failure of Enterprise A relation to system implementation. Another failure factor experienced by the firm is during the implementation phase is where there is insufficient support from both the management and the vendor pertaining to staffs training and knowledge transfer, thus resulting in process failure to use the system. Significantly, this has leads towards another failure, known as interaction failure, of which the level of end-user usage of MYOB system is not high due to incompetency among the staffs. Additionally, it leads to another failure factor which is employees' resistance to change as proven by not fully utilizing the MYOB system. Last but not least, another critical failure factor found in this case analysis is that, over reliance to the vendor as



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consultant in system implementation of which the vendor itself is not reliable provides insight that the firm has chosen wrong vendor. Overall, Enterprise A has faced strategic failure, operational failure, interaction failure as well as choosing the wrong vendor as critical failure factor in implementing ERP system. Future study that may be suggested (1) to explore more SME to examine others uncover CFF, (2) to have more comprehensive empirical studies which provide insight on the direct and indirect relationships among the critical factors and the actual benefits of ERP implementation (2) to compare the CFF between SME and public companies to have greater picture on the common CFF regardless size of the firms.

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