

Impact of Enterprise Resource Planning on Management Control System and Accountants' Role

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ABSTRACT

The advancement of information and communication technologies (ICTs) changes not only people's lives, but also the way businesses operate. Enterprise resource planning (ERP) is one example how technology transforms business from a labour- to a machine-intensive process and improves organizational control. The purposes of this study are to examine the effectiveness of ERP system implementation on the management control system and identify the changes in accountants' roles with the implementation of ERP systems. Two companies, one from construction and one in property development activities in Malaysia, were selected, and triangulated data-collection techniques of observation, document analysis, and interviews were employed. This study found that the ERP system is an excellent device for a formal management control system as it helps companies identify wastage at the earliest possible time. In terms of accountants' role, the ERP improved their work significantly as they can dedicate more time to financial analysis and decision making compared to data entry previously.

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INTRODUCTION

The evolution of information technology has occurred rapidly in the dynamic and changing business environment in recent decades. Since the introduction of enterprise resource planning (ERP) systems in the 1990s, many organizations across various industries have started utilizing ERP to improve their competitiveness in the corporate world (Dechow and Mouritsen, 2005), organizational efficiency and effectiveness, and ultimately performance (Arnold, 2006). An ERP system is a software application that integrates business processes and transfers data into a centralized database (O'Mahony and Doran, 2009; Ross *et al.*, 2006). The data are then made available to all personnel in the organization at all times. These systems have been used by many companies for decades (Cao *et al.*, 2013) and, nowadays, they not restricted to large firms, but have become increasingly popular among mid-sized and smaller firms (Sánchez-Rodríguez and Spraakman, 2012).

The current complex business circumstances also make the ERP system an important tool in the accounting field as it has a significant impact on the role of management accountants. For example, ERP allows fast access to the relevant real-time operational data (Kallunki *et al.*, 2011) management needs for decision making (Arnold, 2006) and management control. Thus, without consulting the accountant first, management can still immediately obtain the information needed through the ERP system for fast decision making. This indirectly revolutionized the traditional management control systems, but it also created a challenge for accountants to remain competitive in the market as the analytical and interpretative functions may not be necessarily carried out by accountants. With a more advanced version of ERP, many analyses can be performed without the accountant's assistance, thereby increasing the quality of management control and decision making.

Yet things are not always easy when an organization implements an ERP system. Grabski *et al.* (2011) argued that ERP systems are typically the largest, most complex, and most demanding information systems implemented by firms nowadays. Consequently, certain factors potentially influence the project management team's decisions on how to use their limited resources and invest in the right products. These factors may either have a positive impact or generate more problems on the outcome or during the implementation of an ERP system. Implementation is usually a big project often accompanied by substantial changes in the organizational structure and work procedures. Without strong leadership from the top management and proper control, it will be a difficult process for the ERP system to "go live."

The different outcomes from ERP system implementation in the two companies selected as comparison studies for this paper motivated us, for the benefit of both academic research and practising communities, to understand the process and impacts of ERP system implementation. In addition, the scarcity of this particular approach and issues under investigation in the literature, particularly focusing on developing countries (Jack and Kholeif, 2008) like Malaysia, has also been a key motivator for conducting this research.

The purposes of this study are twofold: to examine the effectiveness of ERP system implementation on the management control systems and to identify the changes in the accountants' roles with the implementation of the ERP systems. The scope of the study focuses

on the period from the day the ERP system is implemented until three years after the ERP implementation process in the two selected companies, one each from construction and property development activities in Malaysia. The factors and challenges of ERP system implementation in the two selected companies are the areas of interest for this research. Furthermore, the management control systems' impacts on the change in accountant's roles will be another area of interest for this research.

This research focuses on companies operating in construction and property development activities for several reasons. First, the construction and property development industry is a highly fragmented industry. The company needs to communicate on a large scale with other related businesses, such as material and equipment suppliers, vendors, sub-contractors, and clients. Second, construction and property development companies are categorized as specialized industries, meaning they have to adhere to more detailed and complicated management accounting practices, such as construction cost management systems, job cost calculation and reporting, work-in-progress (WIP), construction accounting processes, and contractors' financial statements. Thus, it would be interesting to scrutinize how the implementation of an ERP system is able to integrate and automate many of the company's business processes, such as financial management, procurement, project management, and maintenance and, hence, the company's management control system.

This study contributes to the field in several ways. The findings of this research can be used by business owners or managers as well as ERP system vendors to assess the requirements of the systems and evaluate the challenges and effectiveness of an ERP system implementation. In addition, it can be used by the vendors to correct and improve the ERP system for extensive use by managers and organizations.

The implementation of an ERP system will bring not only benefits to an organization, but also challenges in its implementation. Thus, by the end of the research, a more comprehensive understanding of the factors and challenges inherent in implementing an ERP system in a construction and property development company can be clarified. Furthermore, the impacts of ERP system implementation on the management control system and the changes of accountants' roles are also verified. It is hoped that this study can assist managers and vendors as well as academic researchers and developers in improving the systems requirements, features, and efficiency.

LITERATURE REVIEW

Benefits of ERP System Implementation

Empirical findings provide extensive evidence on the invaluable benefits of adopting an ERP system in the company. Among the most important attributes of ERP are its ability to automate and integrate business processes, enable the implementation of best business practices, share common data and practices across the entire enterprise, and produce and access information in real time (Nah *et al.*, 2001; Soh *et al.*, 2000). A centralized ERP system replaces multiple disconnected databases with an individual system that is able to incorporate different

applications and various data sources. Thus, the company is able to maintain consistent and accurate information across personnel, units, and departments. A complete and comprehensive flow of information can be viewed via a single system that provides better visibility, thereby aiding in improving organizational performance.

This system is also very powerful and able to improve a company's transaction processing capabilities, which may involve thousands of transactions in a day (Dechow and Mouritsen, 2005). Record keeping tasks become much easier and more co-ordinated (Chapman and Kihn, 2009) while unnecessary costs incurred due to data duplications can be eliminated (Dillard and Yuthas, 2006; Kamarulzaman and Mohamed, 2013; Scapens and Jazayeri, 2003). Mustapha and Ismail (2013) found that companies with a centralised information structure have significantly lower monitoring costs compared to those companies adopting a decentralised information system. This can be achieved because the ERP system enables the company to store information centrally. In addition, the integrated profit, cost, and revenue information provides the company with an opportunity to reduce costs and, hence, increase profits. These important figures can be effectively analysed and evaluated as well.

In addition, the easier access and control of information in a comprehensive and dedicated database allow the company to create and manipulate different types of financial and management reports which are customized based on the users' specific needs and purposes (Chapman and Chua, 2003). Consequently, relevant and accurate information will provide a better analysis and improve effective decision making (Wagner and Newell, 2006). Daily management activities can be enhanced, and strategic planning together with the business objectives can be appropriately supported due to better data accessibility, such as real-time data access and efficient mobile functionalities.

An ERP system is also able to strengthen a company's fiduciary control (Wagner and Newell, 2006). For example, Kim (2013) found that a firm that uses an ERP system is negatively associated with an audit report lag; however, this negative association is significant only after a certain period of time—specifically, three years after initial ERP implementation. Therefore, and organization's use of ERP may help decrease the audit report lag. Yet this benefit is not immediate and instant; rather, it takes some time for the full impact of the firm's accounting systems to be realized.

An ERP system also contributes to better internal control practices in the company. Morris (2011), for example, conducted a study examining SOX Section 404 compliance for firms that implemented ERP systems between 1994 and 2003. He documented that ERP-implementing firms are less likely to report internal control weaknesses than a matched control sample of non-ERP-implementing firms.

Challenges in ERP System Implementation

Before embarking on and investing in a new ERP system, it is critical to understand the requirements and determine the objectives of implementing such a system (Grabski and Leech, 2007) because the evolution of new technology has made ERP systems more sophisticated and created a perception that the business process will significantly improve and lead to better

performance and profitability. The specific reasons companies invest in this technology vary, but cost reduction and productivity enhancement typically top the list. The two selected companies decided to invest in an ERP system because of its anticipated benefits.

However, several issues still need to be resolved as the process of implementing an ERP system is not an easy task. There is a possibility of resistance to the new system because the organization's employees are already very comfortable, expert, and knowledgeable with the existing systems which have been used for a long time (Berente *et al.*, 2007). The implementation of an ERP system substantially deviates from the current system, and this impacts the organizations and their employees extensively (Grabski *et al.*, 2011). For example, Rikhardsson and Kraemmergaard (2006) reported that the implementation of ERP in six large Danish companies influences values, culture, behaviour, processes, and procedures of other actors in the organization.

Background of the Study

This research adopted a case study approach to take advantage of rich information and analysis by focusing the research effort and energy on only a few subjects—in the context of this research, two companies because the approach is more realistic, is practical, and gives more accurate results as to what happened in the real world. Smith (2015) suggested that a case study is the most appropriate method to use when there is an opportunity to examine actual practices. In this context, the permission to conduct interviews and verify certain non-publicly available documents was captured and utilized to produce the best outcomes. A case study can derive data and provide an in-depth understanding of events in real-world contexts (Bromley, 1986). The background summary of the companies selected for case studies follows.

Company X

The first company, referred to as Company X, was incorporated in November 1988. It is a wholly owned subsidiary of a company listed on the Kuala Lumpur Stock Exchange (KLSE) which began its business upon incorporation with housing development as its main activity and subsequently diversified to become a construction company. To date, Company X is a Class "A" contractor and has attained the highest G7 classification with the Construction Development Board (CIDB). Under its diversification strategy, Company X has expanded rapidly since 1998, in which it recently successfully secured projects amounting to more than RM1.50 billion; these are sufficient to generate a reasonable level of profits over the next few years. Along with the distinct expansion, Company X has progressed significantly and is currently involved in various prestigious projects in Malaysia.

Company X and its approximately 150 employees generate total revenues of RM75.0 million and total assets of RM155.0 million. Its total equity is RM100.0 million, or 65% of total assets. With more than 20 years of experience in the business, Company X is financially strong and can afford to offer the very best of professional expertise to its clients and business associates. Company X's vision is to establish itself as a highly credible and respected organization in the construction industry. Its mission is to attain success as a socially responsible Malaysian corporation that excels in all its business ventures.

Company Y

The second company, Company Y, is related to Company X via its directors. The company was incorporated in December 1998 and commenced its operations in October 1999. Company Y's principal activity is property development, where it has expanded significantly via its current involvement in prestigious projects across Malaysia. Its current land bank consists of more than 1000 acres of land with a total gross development value (GDV) of approximately RM5.0 billion. Supported by its more than 10 years of experience in property development and its excellent financial strength and professional expertise, it can afford to offer the very best in property development and construction to house buyers, joint-venture partners, suppliers, and business associates.

Company Y and its approximately 50 employees generate total revenues of RM80.0 million and total assets of RM213.0 million. The total equity is RM16.0 million, or 20% of total assets. Company Y's mission is to succeed as a model organization in property development renowned for its quality and beauty in every property developed and delivered to its customers. To accomplish the mission, the company has undertaken and successfully completed several projects across Malaysia worth more than RM700.0 million.

Relationship of the Two Selected Companies

Company X and Company Y are related by their directors: The managing directors are brothers. The group is spearheaded by an executive chairman, who is the eldest brother. However, both companies operate as separate entities based on their principal activities.

Company Y's main products are the sales of properties such as residential houses, shop lots, and office buildings. It planned to develop the lands it owns into residential townships and business centres and will continue looking for new lands to develop. In short, it owns the lands to be developed, it sells the properties developed on the lands, and the main income of the company is collected from the purchase of properties.

Meanwhile, Company Y plans for the development of lands. A client–supplier relationship exists between the two companies, where Company X is awarded the contract to construct most of the development on the lands. This is the main income of the company, besides the contract awarded by the government's contracts obtained via tender application.

RESEARCH ISSUES AND METHODOLOGY

An ERP system should be rooted in the business, as it often pervades business, encompassing and changing in almost every area (Tambovcevs and Merkurjev, 2009). There is no best system for all companies; rather, there is a process that companies can go through to find the right system (Tambovcevs, 2010) as the ERP system can be totally or partially integrated. The purpose of this study is to identify the impact of the systems on the management control system and the role of accountants in the companies.

After a long and careful evaluation as well as discussions, the implementation contract to implement ERP systems in both Company X and Company Y was awarded to the IFCA Software Solutions in October 2007. Once the decision to procure the software system was made, two external information technology (IT) consultants from the software system developer were assigned to the companies. The implementation project began in November 2007, with a recommended implementation period of 12 months and the aim to “go live” with the systems in January 2009. Both were to work together with the project team, who were also split into two teams—one team for Company X and another team for Company Y. Those selected for the team were generally the individuals most knowledgeable in IT systems and business flows of the companies. However, due to unforeseen issues, the “go-live” scheduling planning did not go as smoothly as planned, causing delays in the implementation project.

Research Methodology

The data for this study were gathered using three methods, including participant observation, document analysis, and interviews with key personnel of the organizations who use the systems. The combination of these methods, called the triangulation approach, allows for cross-checking the research outcomes from multiple sources of evidence (Yin, 2012), which will improve the reliability and validity of the research (Smith, 2015).

The participant observer was a researcher involved in the ERP system implementation process. She has been with the company for more than five years. She studied the process during the implementation of the ERP systems in the company.

Document analysis relied on the data generation and data reduction methodology involved in analysing information related to companies that have implemented the ERP systems (Gargeya and Brady, 2005). Several types of documentary evidence, such as contracts with vendors, documents related to the selection and implementation process, brochures, annual reports, and company profiles, were also analysed.

The interviews comprised semi-structured interviews. In this study, interviews were conducted with the group financial controller, the accountants at both companies, and an IT executive. These methods sought to obtain data on respondents’ experiences and insights from them related to ERP system implementation. Before interviewing the respondents, an interview sheet was prepared in advance to ensure that no important questions were missed. The sheet was also given to the respondents before the interviews so that they could be well-prepared.

FINDING AND DISCUSSIONS

Impact of the ERP System on Management Control Systems

Based on Anthony and Govindarajan’s (1998) study, a management control system is a process by which a manager monitors and guides other members of the organization to ensure that decisions are made throughout the organization while increasing the chance of achieving the organization’s desired objectives, strategies, and organizational performance. It is a tool to

aid management as well as gather and apply the information to evaluate the performance of different organizational resources (Kallunki *et al.*, 2011), such as human and financial resources, as well as taking the organizational strategies into consideration. Its information-based routines and procedures are used by managers in the organization to ensure efficient and effective organizational activities (Simons, 2013).

Anthony's (1965) study, on the other hand, described a management control system as formal information processes where management accounting—the most important activities—is centrally located to control overall activities of the organization. A management control system can also assist the manager in making decisions and can be implemented and exercised via formal and informal ways. The formal modes of control consist of contractual obligations of behaviour and outcome and are generally associated with performance evaluation (Grabski and Leech, 2007). Examples of formal control mechanisms include rules, laws, regulations, manuals, policies, operating procedures, and budgetary guidelines.

Informal control is a social control based on the human resource or people strategies, such as group or peer control and self-control. The informal control mechanisms allow for the introduction of some type of self-regulations and influence over other members of the organization. Informal control, in contrast to formal control, is not designed and established properly with specific objectives. However, it is still important to the achievement of the organizational strategies. The informal controls are generally associated with group control and self-control and are based on social and people-related strategies (Eisenhardt, 1985; Jaworski, 1988; Kirsch, 1997). The informal control mechanisms allow for the introduction of some type of self-regulation, which includes informal feedback that is not really specific and measurable. Sometimes, it can be performed based on daily social interactions and chats during leisure time, like during lunch among colleagues (Pitkänen and Lukka, 2011). London (2003) suggested that a group of people will share common values, beliefs, and goals. The individuals within the group will share informal feedback communicated indirectly in everyday interactions (London, 2003), even after office hours and outside the organization.

The link between the ERP system and a management control system appears important as the benefits of an integrated system allows easy and fast access to information (Arnold, 2006) and conveys the information in a relevant and usable form. Prior empirical research has shown that ERP implementation influences the management control systems, both formally and informally. Kallunki *et al.* (2011), for example, found a significant relationship between an ERP system and formal and informal control systems that mediate to improve operational efficiency and then enhance the firm's performance. Spathis and Constantinides (2004) also found an increased use of non-financial performance measures and profitability analysis when ERPs were implemented. Dechow and Mouritsen (2005) argued that a management control system in an ERP system environment is not only about improving accounting functions, but is also largely a collective perfection in which formal and informal controls are created in different parts of the organizations.

This study found that, when it comes to the use of control system in the two studied companies, Mr X said that “ERP is a fantastic tool for management control system”. He added

that the ERP system had added transparency and was easy to control all the business units and activities. The variance report in the companies' ERP system assists in monitoring the budgeting and planning to ensure that costs have not overrun. If the cost has neared the budgeted cost, managers will be alerted and quick action will be taken to overcome the problems.

Another example given by respondents, such as accountants, is the monitoring of materials on site. This study found that, if the materials on site, such as ready-mixed cement and steel bar, are running low at the construction site, the purchasing department will be alerted and a new order will be made to ensure that the work on site will not come to a halt.

However, before this impact can be realised, some obstacles need to be overcome. Data migration from the old system to the new ERP system is the biggest problem because any loss of data and duplication of information will tarnish the reliability of the new ERP system and, hence, lead to poor control and decision making. This problem has been successfully resolved by the company. According to Mr X, this issue "is encountered at the early stage of ERP implementation by IFCA (the vendor), which transferred the legacy data into a new system from the Excel spreadsheet and manual records". Data verification was then performed to ensure that the data were accurately transferred, complete, and able to support new systems. In addition, data cleaning was also carried out to increase data quality, eliminate redundancy, and remove obsolete information.

The other problem is information extraction from the ERP system itself. In order to enjoy the full influence of a management control system, the information needed by the user must be accurate and complete. Mr X claimed that:

"They often encounter problems in getting the information from the system beyond what is provided by the standard reports. [For instance,] different manager requests for different reports and the format of the reports are often changed. As the systems can only produce a standard report, to customize the report from the system to cater for the need of each manager means to incur more cost".

Thus, the responsible person has additional tasks to entertain and fulfil this request, which in a high volume context may be counterproductive and does not weigh with the benefits as compared to the time, energy, and cost committed.

Although the impact of ERP over formal control is evident, when it comes to the informal control mechanisms, this study found no significant difference in control after implementation of the ERP system. This may be due to the current working culture, where younger employees are expected to respect their seniors. Thus, the respect was always there, irrespective of whether the ERP system was implemented or not. This is consistent with Hofstede's cultural dimensional theory that found Asian countries, including Malaysia, have high power distance, meaning more powerful members like older and senior staff are respected and feared by followers and juniors (Hofstede, 2011).

Change in Accountants' Roles after the Implementation of the ERP System

The implementation of an ERP system undeniably changes a company's operations and procedures, including the nature of the job and role played by accountants. In the accounting literature, the impact of ERP system on the work of an accountant has been recognized as one of the most important factors shaping the demand for the accountants' expertise, knowledge, skills, and responsibilities in the future. ERP makes computerized knowledge and skills, like an accounting information system (AIS), more important, which are significantly emphasized by accounting programmes and courses in colleges and universities that offer accounting programs.

Sánchez-Rodríguez and Spraakman (2012), for example, examined the changes that ERP implementations have brought about in organizations. They found that companies' charts of accounts were expanded due to ERP, which allowed the performance measurement to become more extensive, standardized, and thorough as well. In addition, non-financial measures comprehensively revamped with financial and non-financial information were equally important and integrated with each other in a company's transactions.

However, when it comes to changes to accounting techniques and activities, Newman and Westrup's (2005) findings were similar to those of previous studies. Other than the expanded chart of accounts, the accounting techniques were not significantly influenced by the ERP system implementation. In response to the change of activities, Sánchez-Rodríguez and Spraakman (2012) found that management accountants participated less in recording and processing the transactions. Their job became more about analysing because more accurate and timely information from the ERP system provided the opportunity for more reliable, precise, and valuable decision making.

The roles of accountants as the transaction handlers and financial report provider have been further expanded based on the findings of Chen *et al.* (2012), who found that, following an ERP implementation, the differences in the roles of financial accountant and management accountant became wider and more obvious. The financial accountants' role did not change substantially, like that of management accountants. Indeed, management accountants had to take over more management functions, such as education, training, and financial analysis.

Chen *et al.* (2012) also documented that successful ERP implementations increase data quality, improve decision making, and enhance automation through a higher number of auto-generations compared to traditional or pre-ERP system implementations. Thus, in addition to the skills of compiling data and preparing financial statements, accountants also need to improve their abilities to communicate effectively and perform analytical analyses accurately.

The findings and suggestions in the literature claiming that the management accountant's role has changed are also supported by the current study. The respondents (accountants) agreed that they certainly have improved their work in terms of spending significantly less time on data collection and more time on data analysis. As Company Y's accountant explained,

“There is now more time to analyse the information from our system. Before, it could have taken us weeks to prepare a financial report, but with the new system now in place, the information is available straightaway and it allows us to complete our closing quickly. We can now spend better time on higher level activities, such as variance analysis and receivables collection trends”.

A similar finding was also reported by Rom and Rohde (2006) in their survey of a Danish company. Due to the centralization of data, less communication occurs between the departments. The time saved can be utilized on other beneficial and value-added tasks. The emphasis is on providing more time to analyse the information and use this information for business decision making. For example, Company Y’s accountant described that she spent more time analysing the information rather than just getting the final figures.

When asked about the changes in accounting techniques, the accountants from both companies agreed that the techniques did not change, but more detailed and accurate data could be obtained faster because the preparations of financial statements are bound by the standards set by the professional body, the Malaysian Accounting Standards Board (MASB). Because the construction and property developer companies are categorized as specialized industries, they have to adhere to more detailed and specific accounting standards. Therefore, the accounting technique does not have any impact upon the implementation of ERP systems, which has made it easier for non-accountants to conduct non-relevant accounting roles.

These findings support prior research conducted by Sayed (2006), which examined the interrelation of accountants’ expertise and ICT in general and ERP in particular. Sayed documented that the impact of ERP implementations force accountants to redefine their expertise, skills, and roles. They need to evaluate and analyse how the systems should work within their companies and how they are compatible with their new roles. In addition, accountants actually do not have many options, but instead have to align their activities with the ERP because the shareholders have invested large sums to establish and implement this new advanced technology system. Thus, the shareholders want to see evident benefits as quickly as possible.

Regarding respondents’ perceptions of the ERP system implementation, the accountants from both companies agreed that, although ERP does not change their responsibilities (i.e., to provide the month-end figures), it does ease the burden of preparing such data. Company X’s accountant stated that they “hardly had to stay back during the month-end closing because data can be obtained quicker than before”. This is because, with the ERP system, all accounting functions, such as general ledgers, account payables, account receivables, fixed assets, and cash management, are fully integrated. Ongoing updates and adjustments can be done at any time because the perfectly integrated ERP system connects all functions together. Thus, real-time information is available for the accountants for effective and efficient decision making. In addition, more streamlined processes and workflows and the smooth interface among various departments enhance the accounting trail. Thus, it is much easier for accountants to perform audits and verifications of the integrity of the financial figures and, ultimately, prepare financial statements.

CONCLUSION AND RECOMMENDATIONS

When it comes to the use of a management control system, it can be exercised through formal and informal mechanisms (Grabski and Leech, 2007). An ERP system is a good tool for a formal management control system. It assists the managers in identifying any potential costs overruns as it can alert managers immediately if the costs are nearing the budgeted costs. However, such a system has not brought any changes to the informal control system because the culture of respecting others exists whether the ERP system is implemented or not.

In terms of the impact of an ERP system on an accountant's work, it certainly has improved such work particularly in terms of time as accountants spend significantly less time on data entry after implementation but more time on data analysis. This means that they can concentrate on analysing the important financial and non-financial figures and be more involved in the managerial decision-making process. The ERP system may change accountants' roles, but the accounting techniques do not change. The quality of data obtained from the system certainly improves as more detailed and accurate data can be obtained faster without changing the techniques. This is because the preparations of financial accounts are bound to the standards set by professional accounting bodies. However, the implementation of an ERP system has certainly improved accountants' roles while increasing their market value in the industry due to the expertise they acquired.

This study indicates that, because the ERP system can allow the information to be easily accessed, it can pose the risk of fraud and unauthorized transactions. In the two selected companies, this study found that the companies do not have a strong security or internal control system. An employee can have control over several parts of the process. For example, an accounts assistant is given the authority to amend the suppliers' master file details; at the same time, he is the person in charge of making payments, meaning he could create fraudulent payments to himself through the creation of fake suppliers. To reduce the risk of fraud and unauthorized transactions, the management has to ensure that no single individual has control over two or more parts of a process.

There are several limitations of this study. This study was constrained due to a lack of available resources and data. Many documents requested for the examination were inaccessible due to confidentiality and privacy. These documents were highly classified because they were considered to provide a strategic advantage to the company.

In addition, key employees participating in the early ERP project and re-engineering of the information system in the company had left the company. Efforts to contact them were also unsuccessful. Thus, many questions related to the obstacles during the early implementation process could not be answered. The IT executives who were still working with the companies were unable to answer the questions convincingly and were not sure about many issues raised by the interviewer. The executive was less experienced when the selection decision was made and just played a supporting role. Many factors affecting why the selected ERP system was chosen could not be identified. This study was also unable to interview the managing director of Company Y due to his busy schedule. Although he verbally agreed to participate in the interview at the beginning, too many times it was postponed due to unforeseen circumstances,

and eventually the plan to interview him was cancelled. The sample size in this study was also very small and involved only two companies.

Future research should include more companies in the study so that many issues can be investigated and more commonality in the findings can be verified. Comparisons can be made between companies, and the findings and conclusions can be generalized with more confidence and reliability. The sample companies can also be extended to companies operating in other industries, such as manufacturing, banking, and general trading. Different industries may have their own unique ERP issues. The banking industry, for example, is highly regulated and closely monitored by federal agencies. Thus, obstacles in ERP implementation from the perspectives of banking and financial laws and regulations can be examined. Finally, other methods of data collection, such as survey questionnaires, can be employed to attract a larger number of respondents, particularly those directly responsible for the ERP, such as the chief information technology officer of a company.

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APPENDIX

Interview questions

1. To what extent, in your opinion, have the business objectives of implementing the ERP system been successfully achieved?
2. What are the challenges faced in implementing or using the ERP system? How do you overcome or counter these challenges?
3. To what extent does the ERP system enhance the firm's performance of management control in this organization?
4. How did accountants' roles change with the implementation of the ERP system in this organization?