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# Impact of an Enterprise Resource Planning System (ERPS) on the Accounting Process of a Public Sector Organization in Sri Lanka

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With the development of information technology, the business environment has become more dynamic, globalized and competitive. Hence, the business processes of organizations have become more complex. To survive in such a complex environment businesses often opt for implementing an integrated solution like Enterprise Resource Planning System (ERPS). The integrative nature of the ERPS has substantially aided in resolving complexities and streamlining the business processes. Since ERPS functions with business processes, it requires changes in the way of doing business activities. Thus, present research studies on the changes of the accounting process with the implementation of ERPS in the Sri Lankan public sector. The change in accounting process covers the change in accounting practices, change in accountant's role and benefits and challenges. In the present study, qualitative approach is selected as the research strategy and the study is conducted as a case of a public sector organization. Fifteen informants were selected within the company and semi-structured interviews are used to collect information. The findings of the study suggest that the ERPS does not bring in fundamental changes to the accounting process, but facilitates improvements to the accounting functions and eventually streamline the accounting process. Nevertheless, ERPS relieve the accountants from routine tasks and assign them new roles such as, analysts, consultants and strategic agents. Further, due to common weaknesses such as lack of training at the implementation, lack of knowledge management and rigid governmental procedures applicable to public sector organization reduces some benefits expected at the implementation stage.

**Key words:** *Enterprise Resource Planning System, Accounting process, Accounting techniques, Accountant*

## INTRODUCTION

Recent changes in the business environment have signified the need for companies to search for new ways to survive and succeed. Arguably, information technology (IT) offers the necessary tools for companies to respond effectively and efficiently to these changes. On the other hand, in this highly automated, IT-led business environment, companies are forced to keep up to date with the new technologies to remain competitive (Spathis & Contantinides, 2004). Enterprise resource planning (ERP) is one of the

latest in an evolutionary series of computer tools developed for managing information and organizations (Duplaga & Astani, 2003). An ERPS is a generic term for an integrated enterprise-wide computing system. According to Duplaga and Astani (2003) ERPS integrate processes, information, and people across functions, plants, companies, and geographic locations. Moreover, Galani, Gravas, and Stavropoulos (2010) stated that ERP systems are integrated software packages that enable companies to combine various business units of different areas such as

production, sales, marketing, finance, human resources generating a strongly integrated system with flow of information across the entire business. Implementation of ERPS brings various advantages to companies. ERP is intended to deliver a significant improvement over the non-holistic nature of earlier organizational information systems. An EPRS would automate and integrate business processes, produce real-time data, simplify business processes, share common data across the organization (Bea & Ashcroft, 2004; Spathis & Contantinides, 2004), remove non-value adding work and improve customer services (Nah, Lau, & Kuang, 2001) which would ultimately increase the efficiency, enhance the decision-making and reduce the cost in businesses. Thus, ERPS brings changes in to organizations and provide competitive edge. These facts have become a trigger for the popularity of ERPS in the business world. Even though ERP system has been developed, evolved and implemented around the world for almost two decades, there are still many recently published reports about the difficulties in ERP implementation (Lui & Chan, 2008; Balzli & Morard, 2012). According to Chakraborty and Sharma (2007) ninety percent of all initiated ERPS projects can be considered failures in terms of project management. Thus, a lot of research has been done during the last decade about the success and failure of ERP implementation. Further, those researches and survey findings presented the reasons and nature of ERP failures (Bingi, Sharma, & Godla, 1999; Wickramasinghe & Gunawardena, 2010). Another reason behind the incongruence between organizational expectation and ERP real outcome is the unawareness of practical reality of ERPS. Though businesses are aware that ERPS implementations are closely associated with Business Process Reengineering (BPR), the availability of information about

the practical outcome of the ERP is very less. Thus, the knowledge on practical consequences of such systems is very little and it creates a knowledge gap on the practical consequences of ERPS (Granlund & Malmi, 2002).

Accordingly, based on the research phenomenon that ERP implementation and the real change in business processes, a literature survey was conducted and the researcher came across several research articles, which reveal the impact of ERPS on business processes and subsequent benefits of an ERP implementation. However, these reports are drawn from industrialized country settings. ERP take-up has been much lower in developing countries (DCs), with estimates that these countries make up some 10-15 per cent of global ERP sales (Hung & Palvia, 2001; Rajapaksha & Seddon, 2005). Though, developing countries look set to become the locus for a major expansion of ERP implementations (Molla & Bhalla, 2006) at the same time, reports have emerged of ERP failures in these countries (Al-Mashari, Al-Mudimigh, & Zairi, 2003; Rajapaksha & Seddon, 2005). On the basis of this background the growing investment in, and potential of, ERP systems in developing countries combined with high rates of failure but relatively little literature on ERP experiences in DCs (Molla & Bhalla, 2006; Wickramasinghe & Gunawardena, 2010). Further, these Western researches are hardly applicable to south Asian countries like Sri Lanka due to differences in socio-cultural aspects and the level of technology (Wickramasinghe & Gunawardena, 2010). However, with the development of the technology and globalization in the present context, ERP systems are becoming very popular in Sri Lanka (Personal communication, May, 26, 2014).

Thus, in the recent past many Sri Lankan organizations have initiated ERP

implementation projects aiming to centralize and streamline their organization's processes for better performance. This trend of adaptation of ERP systems could be identified due to the enormous benefits that it brings, which other conventional information systems failed to bring in to the organizations (Spathis & Ananiadis, 2005). Moreover, in response to several factors, such as increasing global competition, lower labor costs in Sri Lanka, the completion of civil war in the country are the avenues of development. Thus, Sri Lankan businesses are increasingly becoming open to globalization and world competition. Therefore, a technology based research such as ERP system is interesting, relevant and timely need of the country. Furthermore, many authors have found that there are significant differences between public and private sector contexts in the case of an ERP implementation and its use (Heintze & Brestschneider, 2005; Blick, Gullidge, & Sommer, 2000; Raymond, Uwizyemungu, & Bergeron, 2005). Kumar, Maheshwari, & Kumar (2002) noted that ERP systems were initially designed for the private sector. Therefore, research on ERP implementation in the private sector most likely cannot be applied effectively to the public sector (Balzli & Morard, 2012). In addition, Wanger and Lederer (2004) found that the public sector has only limited experience with ERP implementation compared to the private sector. Yet, as Raymond et al. (2005) noted that the public sector has shown increased interest in ERP, which again highlights a need for further research. Indeed, Balzli and Morard (2012) argued that there is a risk to public agencies wishing to implement ERP systems because of the lack of sufficient research and case studies from this sector. There has been very little research into implementing them in a government setting. Hence the changes that occur

within the finance functions of the public sector need to be investigated further (Balzli & Morard, 2012).

Accordingly, purpose of the research is to explore the impact of implementing an enterprise resource planning system on accounting process focusing on accounting practices and accountants role of a public sector organization in Sri Lanka. As there is an empirical gap in the existing literature to address this issue, this research was undertaken as a case study with the motive of providing an in depth knowledge on research phenomenon and issue.

## LITERATURE REVIEW

### What is ERP?

ERP system is a packaged business software system that allows a company to automate and integrate the majority of its business processes, and share common data and practices across the entire enterprise (Seddon, Shang, & Willcocks, 2005). Klaus (2000) mentioned that ERP concept is not only an IT solution, but also a strategic business solution. As an IT solution, ERP system, if implemented fully across an entire enterprise, connects various components of the enterprise through a logical transmission and sharing of data (Balls, Dunleavy, Hartley, Hurley, & Norris, 2000). When customers and suppliers request information that have been fully integrated throughout the value chain or when executives require integrated strategies and tactics in areas such as manufacturing, inventory, procurement and accounting, ERP systems collect the data for analysis and transform the data into useful information that companies can use to support business decision-making. They allow companies to focus on core and truly value-added activities (Fang & Patrencia, 2005). These activities cover accounting and financial

management, human resources management, manufacturing and logistics, sales and marketing, and customer relationship management.

### **ERP Researches Conducted in Public Sector**

It is good to examine previous researches conducted on public sector regarding the ERPS. Public sector covers a variety of government owned and controlled organizations. Since 1970s, public sector organizations throughout the world have been undergoing a series of progressive reforms (Dann, 1996). There are public sector organizations that have implemented ERP systems. These include federal, state, and local governments (Harrison, 2004). According to Harrison (2004) a public-sector ERP system implementation is often more complex than a private-sector one; "Because there is often a Gordian knot of regulations, boards, commissions, and agencies that must be disentangled to complete the project".

Regarding the public sector, there has been little research to date on changes in the finance profession. However, there appears to be a range of opinions and findings in the literature. Some authors have found important general differences between the public and private sectors. For instance in their study Chang, Gable, Smyth, and Timbrell (2000) explained ERP implementation in the public sector, and demonstrated that the issue of "ERP knowledge management" is most problematic in a government context. Cacciagudi-Fahy, Currie, and Fahy (2002) described the difficulties that public sector organizations may face in trying to initiate changes to work. They noted that such changes frequently require approval of union representatives. Gullledge and Sommer (2003) noted that the definitions of incentives and performance measures can differ between the public and private

sectors. That study further stated; "There is nothing special about the management of public organizations that precludes them from implementing modern private sector management practices and integrated information systems" (p. 472).

They also posited that the need for information is comparable between both sectors. Further Balzli and Morard (2012) believe that research on ERP implementation in the private sector most likely cannot be applied effectively to the public sector.

Consistent with the recommendations for private corporations, Harrison (2004) recommended that in selecting ERP software, public sector organizations compare their existing processes to best practices, minimize software modifications, create a request for proposals by modifying another government's proposal, have functional requirements submitted by functional managers, partner with an agency that has public sector implementation experience etc.

### **ERPS Researches in the Sri Lankan Context**

In recent years there has been an increase in using Enterprise Resource Planning (ERP) systems in large companies and government corporations mainly in developed countries. While there is wide adoption of ERP systems in Western economies, developing countries lag far behind (Otieno, 2010). However, due to recent economic growth, developing countries such as Sri Lanka are increasingly becoming major targets of ERP vendors. Although only fewer numbers of companies in Sri Lanka, especially multinational companies have implemented ERP systems to gain a strategic competitive advantage (Fernando, 2004).

Furthermore, Fernando (2004) mentioned in his study, since Sri Lanka is a developing country most of Sri Lankan organizations do not have strength to go for ERP solutions. Even if a very few companies do so, unlike in foreign countries, the amount they spend for ERP is a significant amount (very high percentage) of their total income. Undoubtedly it is a real waste, if organizations not success after spending quite a lot of amount of money and time.

Over the last decades, there has been a dramatic growth in the attainment of ERP systems.

However, more recently, there has been an increase in reported ERP failures worldwide despite the initial promise (Bingi et al., 1999; Tasi et al., 2010). In Sri Lankan context the situation is the same. The organizations that had implemented ERP systems are not all satisfied with their projects (Fernando, 2004).

Therefore, study of ERP systems implementation in Sri Lanka is a new area, and limited studies have been conducted in the past. Wickramasinghe & Gunawardena (2010) stated that; "...our review of journals that are outlets for information systems related research in popular databases of Business Source Premier, ABI/Inform, Emerald, Science Direct, and Wiley Blackwell has been unable to find any studies conducted on enterprise system (ES) in developing countries, not even in India" (p 467).

Fernando (2004) researched on implementing ERP and its relation to business process reengineering with special reference to Sri Lanka. Researcher has collected data covering a number of organizations in Sri Lanka from different sectors through a questionnaire survey. The survey revealed that finance, manufacturing and distributing were the

popular area in ERP system, manufacturing organization were the most interested in implementing ERPS and the use of consultant in change management and BPR was less. Further, the researcher also pointed out twenty Critical Success Factors (CSF), highlighting that BPR must be done parallel for a successful implementation of an ERP system. De Alwis and Dissanayake (2010) conducted a reserch on middle managers attitudes on business performance generated through enterprise resource planning. The findings of the study revealed that there is a relationship between ERP features and its impact on business performance. However, the relation was identified as weak positive. In other words, selected companies ERP systems have been influenced to the performances of their business to small degree. Wickramasinghe and Gunawardena (2010) carried out a survey research to examine the critical elements that discriminate between successful and unsuccessful ERP implementations in Sri Lanka. Through that research they have identified that training and education, user involvement, managing user expectations, interdepartmental cooperation, ERP teamwork and team composition, software development, testing and troubleshooting, project management, project champion, BPR and customization, change management program and culture, and effective communication significantly differ between successful and unsuccessful implementations. In addition, Thowfeek and Jayasiri (2012) conducted a case study in a privet sector manufacturing company to identify the ERPS impact to the accounting practices. However, an extensive search reveals that the above four are the published research articles that research on ERPS in the Sri Lankan context and it was unable to found a single article regarding the ERPS impact on public sector in the Sri Lankan context. Thus, the

lack of research on ERPS in Sri Lanka is vividly situated. But now, due to the magnitude of the ERP phenomenon, the need for such studies has become very important especially in the Sri Lankan context (Fernando, 2004).

### **Theoretical Background**

There are several research articles which describe the impact of ERPS on an accounting process. Following are some published literature of ERPS impact on accounting processes including role of accountants. Spathis and Contantinides (2004) conducted a study to examine the ERP System's impact on accounting process. This study examined why companies choose to convert from traditional information system (IS) to ERP and changes brought it, particularly in the accounting process. The empirical evidence confirms number of changes in the accounting processes introduced with the adoption of ERP systems. The most frequently quoted ones involve the introduction of an internal audit function, the use of non-financial performance indicators, and profitability analysis at segmental/product level without any change in the organization structure. Therefore, ERPS has limited impact on the accounting process of the organizations. In addition to that, Spathis (2006) conducted a multiple case study in Greece to examine the accounting benefits involved in ERPS implementation. According to that research, researcher indicated that ERPS clearly affect not only accounting practice but also business operations.

Furthermore, he mentioned that the benefits derived from the application of ERPS focus on the four dimensions: organization, operations, management and IT infrastructure. Thus, the impact and changes to accounting information and practices following the adoption of ES were of a "moderate" nature.

However, in contrast to the above Thowfeek and Jayasiri (2012) on their case study conducted in a manufacturing company stated that there are no fundamental changes in the accounting practices/techniques by the implementation of the ERPS, yet, there were changes in the role of the accountants. Traditional role of accountant has been changed drastically after the implementation of the ERPS. The accountant's role has been enhanced to analysts and consultants. Thus, the role of accountant has substantially changed (Spathis 2006).

Confirming Thowfeek and Jayasiri (2012) and Spathis (2006) views another research conducted on the ERP system impact of ERPS on the accountant role, Chen et al., 2012 found that operations and roles of accountants change significantly after ERP implementation. The workload of traditional data input, data compilation, filing and preparation for financial statements decreases because of ERP implementation. However, the importance of certain operations increases such as understanding internal processes, verifying the accuracy of a new system to make sure when to operate it instead of the old one and providing up-to-date information for decision making (Chen et al., 2012).

Many authors pointed out that accountant in public administrations tend to have a lack of practical knowledge about ERP (Chang et al., 2000; Balzli & Morard, 2012). Timbrell (2008) studied knowledge management of SAP implementation projects in the Queensland government

Australia, and found there was significant doubt that users had the ability to run, maintain, or configure such systems properly. There are several hypotheses about this lack of knowledge: inadequate training, lack of curiosity on the part of users as well as overreliance on the implementation partner.

## RESEARCH METHODOLOGY

The broader purpose of the study is to get a deep understanding about the consequences of ERPS on accounting practices and on role of accountants and to identify the benefits and challenges of the ERPS of the case organization.

Case study is an ideal methodology when a holistic, in-depth investigation is needed (Tells, 1997). According to Yin (1994) case study is an; "empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between the phenomenon and the context are not clearly evident" (p.13).

There are some unique characteristics of case study method, which lead to number of advantages. Case study research method is a flexible method, which does not follow a formula or a set of steps like other methods (Yin, 1994). Ryan et al. (n.d.) discussed that case studies are more concerned on explanations, rather than prediction and the researchers must avoid statistical generalization and it leads in understanding of subject area in that context which help the researcher to study the issue in depth. Thus, it is justifiable to adopt the case study research method for this study.

In this research, purposive sampling is used to select the research site as well as decide on the informants with in the case study. A single case of a public sector organization is decided and accordingly the research site anonymous as ABC organization. A sample of fifteen informants was selected using the purposive sampling. ABC organization is determined since ABC is one of the main public sector organizations which have implemented one

of the best ERP systems in the world that is the Systems Applications Products for data processing (SAP) system. Having a fullfledged ERP system would eradicate technological limitation of the study. Thus, ABC organization is selected as the case study of the research by being aligned to the purpose of the research. Data collection is a crucial aspect in any research study. In this study, semi-structured interviews and document search are used as the data collection methods. According to Yin (1994) use of more than one data collection method in a case study would assist the researcher in eliminating data validity and reliability issues.

Initially, the research participants are selected and interview questions were developed based on background of the context, existing literature on the phenomenon and the background of the organization. After the development of the questions, the interviewees were contacted and a suitable time and venue was fixed for the interviews. Interviews were based on the semistructured questions (see Annexure B) and before the commencement of the interviews a brief introduction of the study was given to the interviewee. Interviews were conducted in both English language and Sinhala language within 30-45 minutes. All the interviews were audio recorded with the consent of the interviewee and the mean time the researcher took field notes to ensure all the data was recorded.

After the data collection, the researcher prepared the data in a form where it could be analyzed.

All the recorded interviews were transcribed word-to-word and important information were derived from the documents. Further interviews which were conducted in Sinhala language translated to the English language without changing any single meaning. At the first place the



collected data were categorized according to the themes developed based on the conceptual frame work.

According to Yin (2012) though, the case study that starts with some theoretical propositions or theory make easier to implement case study avoiding a theory can be highly rewarding. "...at the same time, the opposite tactic of deliberately avoiding any theoretical perspective, though risky, can be highly rewarding because you might then be able to produce a "break-the-mold" case study" (Yin , 2012, p. 10).

Therefore, in this study the researcher has developed a conceptual framework instead of utilizing a theory and framework is based on existing literature. In addition, the "codes" for the pattern matching were developed based on the predetermined patterns, which are shown by the conceptual model of the research. The codes are used to categorize and identify the patterns of the data collected. Finally, the conclusions were drawn after the systematic analysis of data.

Below (figure 3.1) is the conceptual framework of the intended study on "Changes in accounting process with the implementation of an ERPS". To identify the changes in accounting practices, understanding the existing practices and modifications to existing practices after the implementation of ERPS is important. Further of benefits and challengers of ERPS implementation also crucial. Thus, this would help the researcher to identify the incremental changes in the accounting process.

Granlund and Malmi (2002) found only minor changes in budgeting and forecasting after the ERP adoption and hence concluded that ERPS brings small impact on management accounting, where Scapens and Jazayeri (2003) suggested that the budgeting process has taken a

forwardlooking emphasis and claimed that ERPS brings incremental changes to the accounting process.

Thus, understanding the improvements in the existing methods would help the researcher to identify the consequence of ERPS.

Reporting is a vital tool to measure the impact of ERPS on accounting process. According to Spathis and Ananiadis (2005), need of real-time information is one of the main reasons to implement an ERPS. As stated in previous researches, ERPS generate quick, accurate information and provide improved quality reports which are vital for the efficiency of the accounting process (Granlund & Malmi, 2002; Spathis & Ananiadis, 2005). Thus, improvements in existing practices and reporting is one of the important aspect to look for, in order to understand the changes in accounting practices.

However, identifying the use of new accounting techniques and practices is also important since such improvements can be considered as fundamental changes in accounting practices.

According to Scapens and Jayazeri (2003) and Thowfeek and Jayasiri (2012) revolutionary change occurs when there is a fundamental disruption of the prevailing routine work. Further, the researchers stated adoption of new method is a fundamental change in routine work. Thus, Scapens and Jayazei (2003) stated that ERPS facilitates evolutionary change rather than a revolutionary change because no adoption of new accounting techniques has been accompanied with the ERPS implementation. Hence, deep scrutiny on above two aspects would provide knowledge on the changes of accounting practices with the implementation of ERPS. Previous researches have also studied changes in management accountants" role as a result from ERP implementations

(Granlund & Malmi, 2002; Spathis & Constantinides, 2005; Scapens & Jazayeri, 2003). Anastas (1997) claimed that such systems will enhance the role of management accountants and financial managers, and they will become advisers or consultants to other managers (as cited by Scapens & Jayazeri, 2003). Further, Granlund and Malmi (2002) proposed that ERP systems would provide controllers more time to prepare sophisticated analysis. Scapens and Jazayeri (2003) suggested that management accountants would become analysts after the ERP implementation since the time needed to conduct routine tasks will reduce and the accountant would be responsible for the system rather than the content of the final report. Therefore, identifying the new role of accountants; time and extend of involvement in accounting task would provide knowledge on changes of accountants role with the implementation of ERPS. Thus, investigation on changes in an accounting practices and the changes in accountant's role would provide a deep understanding on the changes on accounting process with the implementation of ERPS.

Over the past decade, organizations all over the world have adopted Enterprise Resource Planning (ERP) systems. There has been little research at a global scale regarding the benefits and challenges of adopting enterprise systems (Spathis & Kanellou, 2011). The emergence of enterprise resource planning systems has signified the beginning of a new era in the business environment, where companies can integrate business processes or applications and respond to real-time information (Spathis & Contantinides, 2004; Spathis, 2006).

According to the Granlund and Malmi (2002), Scapens & Jazayeri (2003)

and Galani et al. (2010) ERPS help to carry out routine activities more effectively, to handle large databases more quickly and to report in a faster and more flexible way.

In addition existing literature discussed challenges of ERP system as lack of knowledge, inadequate training, lack of curiosity, accountant in public administrations tend to have a lack of practical knowledge about ERP (Cacciagudi-Fahy et al., 2002; Timbrell, 2008; Balzli & Morard, 2012).

## RESEARCH FINDINGS

### Accounting practices

Prior to the implementation of ERPS in the organization, accounting was basically done using spreadsheets. There were no accounting packages or automated systems to do the accounting functions and each section handled the accounting function on their own. However, after the implementation of SAP, accounting was done using the ERP System.

After the SAP implementation in ABC organization, several alterations in the accounting practices occurred. One of such important change is the automation of accounting practices.

Further with the implementation of SAP increased the effectiveness and efficiency of accounting and finance operations, such as aligning the rules and procedures among functions better. In addition, able to obtain more transparency and reliability of financial reporting. Accounting information becomes more structured at each stage of data processing, and reporting become more quickly. The ERP implementation is particularly useful in improving the organization of the finance and accounting activities (personal communication, October 29, 2014).

Even though there is no clear-cut separation between financial and management accounting, for the purpose of data presentation the accounting practices are segregated as management and financial accounting practices. Hence, the rest of this subsection would discuss how specific accounting practices that have taken place in ABC organization.

### **Management Accounting**

The changes in management accounting after the ERPS implementation are minimal. Prior to the implementation of SAP, basically the management accounting function was done manually or using spreadsheets. Conversely, after the ERPS implementation, financial reporting and account preparation are done through the ERPS and thus, attention of the business moved towards the implications of the figures and values generated through the ERPS. However, even after the implementation of ERPS, still some of the management accounting functions is carried out off the ERP system. Followings are some management accounting practices of the ABC organization.

### **Costing**

In ABC organization, „Singapore Plats“ was used as the main costing method. Even after the ERPS implementation ABC organization uses it, as it is the most suitable method of costing with nature of products that organization produce and distributes.

Further, even after the implementation of SAP, still the costing is done off the SAP on a spreadsheet but with a different format (personal communication, October 29, 2014). Apart from Singapore Plats, ABC uses target costing as well. Target costing has not linked into SAP. Though costing is not done through SAP, the ERPS assists and provides information for accurate costing. However, presently though the costing is done off the ERPS,

the company is looking forward to build the target costing in SAP through Profit and Loss statement (P & L).

### **Budgeting**

Prior to the SAP implementation, budgetary process had totally done manually in ABC organization. After the SAP implementation still user involvement available at certain extent. Hence, currently a standard budget is developed in spreadsheet and uploaded to the SAP system. The SAP would indicate the variation (personal communication, November 12, 2014). As senior deputy finance manager-financial reporting and budgeting explained, the availability of up-to-date information from the SAP system, enable each individual departments to forecast better.

### **Financial Accounting**

Implementation of SAP system has created a hassle free financial accounting task in the organization. Under the ERPS environment, all the transactions are real time processed and thus, complicated tasks have become simple. The integration and standardization of processes keeps the chart of accounts updated and therefore, the updated accounts and the final accounts could be viewed as at any time. Thus, preparation of general ledger account and final accounts are not considered as time-consuming tasks anymore.

### **Internal Auditing**

Internal auditing was employed in ABC organization before the implementation of the SAP system. After the implementation of SAP, internal audit was done basically through the SAP. Because of the visibility and control through SAP, internal auditing has become simpler. The senior deputy finance manager-internal audit described; “Because of the

visibility of reports, invoices and even every transaction through SAP internal auditing has become simpler” (personal communication, October 29, 2014).

#### 4.1.2.2 Stock Valuation

As mentioned above, stock valuation was a complicated task in ABC organization due to the lack of integration and coordination. However, implementation of ERPS has assisted the company to get rid of the complexity of stock valuation. SAP system has facilitated accurate stock valuation in the organization. The senior deputy finance manager of internal audit explained; “...prior to the SAP implementation stock valuation and controlling has been carried out on a standalone computer system individually at each logistic. In SAP system the valuation need not to be done manually as it is done through the system. However, as verification requirement takes place a physical stock count at the yearend...” (Personal communication, October 29, 2014).

#### Reporting

Before the implementation of ERPS, reporting was a tedious task in the organizations. Each month, accountants had to prepare number of reports to the management including supporting reports to the main reports. Nonetheless, after the implementation of the SAP system, the number of reports has reduced and the reporting task has become trouble-free while having high quality of reports (personal communication, November 12, 2014).

#### Role of Accountants

Before the implementation of ERPS in the ABC organization, accountants had traditional role such as recording financial transactions and preparation of final accounts. The financial accountant was

engaged in final account preparation and reporting, while management accountants were mainly concerned on costing and providing reports on business performances.

The senior deputy finance manager-revenue described the earlier accountants’ role as responsibility to data input, data compilation, filing and preparation for financial statements. As the roles of the accountant transform with the ERPS (personal communication, November 13, 2014).

However, though the traditional workload decrease still the conventional roles of accountants remaining at significant level. On the contrary management functions of the accountants have increased. Thus, the roles of accountants of the organization now have become more complicated.

As explained by the accountant-revenue, with the implementation of SAP, skills of the accountant like interpersonal skills, analytical skills, and problem solving skills have developed in to certain extend.

However, with the implementation of ERPS in the ABC, the job description of the accounts clerk does not appear to have changed even after four years of the ERPS implementation. An accounts clerk in internal audit mentioned that accountants’ job descriptions had not changed for a long time.

### Benefits and Challenges of ERPS

#### Benefits of ERPS

The main reason to implement the SAP system within the ABC was to integrate the island wide functions. The SAP consultant-material module explained; “There was no integrated product before the SAP system. Either general software or small software was facilitated which were

developed through the internal. Hence we need to integrate island wide distribution through a one system....Most of oil refine companies in the world uses SAP system and it is the suitable system for an oil related company. Therefore ABC starts to implement the SAP....” (personal communication, November, 12, 2014).

Further, he added; “Due to SAP system ABC’s business, distributions and transactions highly automated...finance module is not a standalone module, but linked to other main modules of the system. For instance, finance module is linked with material management module and sales and distribution module. ... Everything is done in SAP and standardized. (personal communication, November, 12, 2014). The internal audit manager gave his view on the benefits derived in the ERPS environment as follows; “The SAP system brings many benefits to ABC as increase the efficiency of decision making, improves the quality of the data and information, reduce frauds and errors, increase transparency of the transactions, reduce documentary handling, increase effectiveness, increase the accuracy, speed up the transactions, ease the reconciliation procedure....” (personal communication, October, 29, 2014).

### **Challenges of ERPS**

The success of the ERPS was limited by many reasons. In this part present the various challenges of ERPS in the ABC organization. The success of ERPS was limited by the lack of training at the implementation stage of SAP. Many respondents (twelve respondents out of fifteen respondents) view as the main challenge ABC faced with the SAP was using an advanced computer system without prior training. As explained by a manager; “Some of core members were unable to do that responsibility appropriately. It was may be due to

reasons like corporation did not allocate proper training period, proper training center or other training facilities. At the same time corporation did not release the core members from their day to day workload. Therefore core members were unable to give a proper training to the rest of staff....” (personal communication, November, 12, 2014). At the implementation stage, some of the staff members have been faced difficulties due to insufficient training. Notably, minor staff like the storekeepers at the very rural distribution centers who never worked with computers faced difficulties. It is notably shown that many of the accounts division staff especially non managerial level staff with in the head office learned the transaction of SAP through the self-studying after the some guidance of the core members.

Some respondents discussed differences between the public and private sectors. They noted that accountants and accounting managers in the private sector tend to have better educational backgrounds and more experience with ERP projects. As described by the internal audit manager;

“Because of a lack of skills of the public sector the system is not used to the extent that it could be” (personal communication, October, 29, 2014).

In addition, SAP implementation at ABC organization without prior feasibility study also widely criticized. The internal audit manager gave explanation regarding the implementation decision regarding as follows; “Sigma1 (Pvt) Ltd used SAP system before the ABC Organization and ABC got the same image of that. Simply it is a copycat.... Government policy makers persuade to implement the system without any feasibility studies... Even after a four, year ABC fails to implement SAP correctly”

(personal communication, October, 29, 2014).

Another challenge associate with the SAP implementation in ABC as mentioned by the SAP consultant-finance module is, unavailability of SAP disaster recovery plan. Further, she mentioned;

“We cannot directly claim that system operates hundred percent correctly as we wish. Because there have not conduct a system audit“ until today” (personal communication, November, 12, 2014).

## DISCUSSION

The purpose of this part is to analyze the data, which pertain to the accounting process of the case study and to provide an overview of the study. The previous part presents the data collected based on the themes developed by the researcher and within this part analyzes the data and discusses them in relation to the framework. Accordingly discuss the changes in the accounting practices, changes in the role of accountants, benefits and challenges of ERPS.

### Changes in Accounting Practices

The implementation of ERPS has brought in many changes to the accounting practices in ABC organization. The accounting function has been efficient in the organization with the SAP system. Literature confirmed this view, where it is stated that efficiency and effectiveness is gained in the accounting function of the organization after the implementation of ERPS (Scapens & Jayazeri, 2003). Thus, ERPS has been a facilitator of efficiency in accounting practices.

### Improvements in Existing Practices

Through this part of the discussion, functional improvements occurred in an existing accounting process has been identified and discussed. Functional

changes of the accounting process include methods, practices and techniques that are used in an accounting process of the ABC organization. Sigma1 is used to rename the original name of real company under the functional changes, financial accounting has been significantly influenced by the implementation of the SAP. One of the major impacts of financial accounting is that automation and centralization of the routine work. Therefore, ERPS has simplified the job of the accounting division employees. Several studies provided evidence in their studies conforming that ERPS offers the necessary tools for companies to respond effectively and efficiently (Booth, Matolcsy, & Wieder, 2000; Spathis & Contantinides, 2004). In addition, SAP system has assisted the ABC organization to overcome complexities like stock valuation. With the visibility and access to up to date information, the organization was able to overcome the problem of stock valuation that ABC faced before the implementation of the ERPS.

Further, Spathis and Ananiadis (2005) confirmed in their survey study conducted on Greek companies and mentioned that ERPS facilitate high quality work in financial accounting. This is also same in the case of the ABC organization. ERP facilitate real-time data processing, access to accurate information made the financial accounting task easy for the finance staff in the ABC organization. When considering the management accounting techniques, though most of the techniques practiced off the SAP system even after the ERPS, the system has substantially influenced the performance of management accounting. As Galani et al. (2010) stated that though ERPS does not influence selection of method of costing, the high access to information through

ERPS enable the company to engage in costing with accuracy.

Reporting is one of the important things in the accounting process. Reports are the communication medium, which convey the management critical aspects of the business in snapshot as well as in detail. In ABC organization, after the implementation of SAP, number of reports prepared is reduced without the content being compromised. In fact, the reports prepared with the use of SAP are higher in quality. Spathis and Contantinides (2004) also specified that ERPS provide improved quality of reports and financial statements. Precisely the implementation of ERPS has improved the existing accounting practices in the organization. Further, it is clear that these changes evolve from the integration of applications, the production of real-time information and particularly information for decision making.

#### **Adoption of New Accounting Methods**

Under this part of the discussion adoption of new accounting process has been identified and discussed in the ABC organization. According to the findings of the discussion with the finance managers, accountants, accounts clerks and SAP consultants, of the ABC organization it is notably shown that there were no any significant changes occurred in accounting methods and practices with the pure influence of the SAP system. Though existing literature stated that SAP increased effectiveness, accuracy, timeliness of the accounting functions (Galani et al., 2010; Scapens & Jazayeri, 2003; Spathis & Kanellou, 2011) it not caused to adopt any new accounting methods at ABC organization.

According to the deputy finance manager-internal audit explanation, he expressed; "There was nothing added to the accounting functions due to SAP. But many improvements occurred to the

existing system" (personal communication, October 29, 2014). Above findings in the ABC organization has been noted in the literature as well. For example Scapens and Jayazeri (2003), stated that ERPS implementation does not impact in adoption of new techniques but improvement of existing techniques. Granlund and Malmi (2002) also stated

that adoption of new accounting methods did not result from ERPS implementation. Confirming the view if both studies Galani, Gravas, & Stavropoulos, (2010) stated that ERPS implementation does not influence in the adoption of new methods or techniques.

#### **Changes in Accountants' Role**

With the implementation of SAP, accountants" role has enlarged in ABC organization. Moreover, in addition to traditional roles more new roles are added with accountants.

#### **Involvement in Traditional Accounting Roles**

As mentioned above even after the implementation of SAP in ABC organization, the accountants" traditional role remains same. But with the automation, integration and standardization of SAP, role of accountants has become much easier than previous. However, though the workload of accountant has decreased with the SAP, traditional operations like data entering are still remaining as the main operation of accountants. Previous literature has argued that with the implementation of ERP, the traditional routing accounting work must transfer to the accounts clerk (Kumar et al., 2002; Arnold, 2006). Yet, the researcher found that though the involvement of accountants in routine and traditional accounting work has reduced, some SAP routine work like data entering still is the main job of the accountants.

Kumar et al. (2002) studied the perceived risks of an ERP implementation in ten Canadian government organizations. One of their important findings is also mismatch with the present study's findings. Kumar et al. (2002) found that; "The traditional roles of many employees changed and job definitions had to be rewritten following an ERP implementation" (p. 169).

### **New Roles of the Accountants**

SAP has facilitated greater extend of new roles for accountants with the automation, integration and standardization in ABC organization. The finance staff claimed that current accountants' scope is widely focused on business support. Scapens and Jazayeri (2003) in their case study found that roles of accountant became more complex as teamwork, communication, and cooperation increased. The role of an accounting manager transformed into something akin to an "internal consultant" or an "analyst". Caglio (2003) also described accounting managers as "business consultants" and "custodians" of the whole organization, including its information and its resources.

Further, Scapens and Jazayeri (2003) stated that the move from record-keeper to internal consultant requires management accountants to acquire new skills. With the discussion with deputy finance managers and accountants, it is stated that with the new role, accountants need to develop particular skill like analytical skills, consultancy skills, etc., (personal communication, November 12 and November 13, 2014). Granlund and Malmi (2002) argued that ERP implementation can result in changes in the scope of accountants' skills. To work within an ERP system, accountants must have a good understanding of business processes, and they must be able to work in teams

and to communicate clearly and concisely. This is evident in ABC organization as well.

### **Changes in Accounting Process**

According to the conceptual framework, the changes in the accounting process is sub divided into two as changes in the accounting practices, changes in the role of the accountants. Having discussed about these two sections, this part of the chapter analyzes the overall impact on accounting process. For ABC organization, SAP has significantly automated and standardized the accounting function of the organization. The integrative nature of SAP has brought in many changes to the existing accounting process. As mentioned by Scapens and Jayazeri (2003), integration is the central feature of ERPS and of SAP particular.

As discussed in the previous section, before the implementation of the SAP system, accounts were done through manual systems and not interconnected among the island wide distribution centers. But, after the implementation of the SAP every distribution centers linked to each other and thus, highly automated processes were developed. Further, accuracy and quality of the accounting information has enhanced hugely because of this integration. The experience of ABC organization has revealed that standardization of accounting functions can accelerate the process and increase the efficiency and effectiveness of accounting process (Granlund & Malmi, 2002; Booth et al., 2000; Spathis & Contantinides, 2004; Galani et al., 2010).

Further, with the implementation of SAP, real time information and ability to drill down to the root of the information also aid the businesses to conduct in a more efficient manner (Granlund & Malmi, 2002; Booth et al., 2000; Spathis & Contantinides, 2004; Galani et al., 2010).



In addition, even after the implementation of SAP in ABC organization, the accountants' traditional role has not been changed. Yet, the automation, integration and standardization of SAP, has made the accountant's role much easier. However, though the workload of accountant has decreased with the SAP, the basic operations of accountants like data input operations still remains as the main operation of accountants (Kumar et al., 2002; Arnold, 2006).

### **Benefits and Challenges of RPS**

#### **Benefits of ERPS**

The main advantage an ERPS brings to the ABC organization is improving the business processes and information by integrating all functional areas. Many studies reveal that ERPS would automate and integrate business processes, produce real-time data, simplify business processes, and share common data across the organization (Bea & Ashcroft, 2004; Spathis & Contantinides, 2004; Balls et al., 2000; Galani et al., 2010). Booth, Matolcsy and Wieder (2000) offer evidence showing that ERPS have proved more effective in transaction processing, reporting and decision supporting. Moreover, Nah, Lau, and Kuang (2001) express in their study ERPS ultimately increase the efficiency, enhance the decision-making in businesses. Thus, ERPS brings changes in to organizations and provide competitive edge. These facts actually have become a true at the ABC organization. According to the researcher was able to identify the benefits like reducing the routine workload, increasing working efficiency, increasing the quality of analysis and management of statements and raising competitive pressure (personal communication, October 29, November 12 and November 13, 2014). Moreover, in ABC organization the ERPS implementation has led to

increase efficiency of decision making, improve the quality of the data and information, reduce frauds and errors, increase transparency of the transactions, reduce documentary handling, increase the accuracy, speed up the transactions, and ease the reconciliation procedure. Literature has also noted that ERP increases the transparency, accuracy, efficiency of the organization (Kokouris & Polychronopoulous, 2005).

#### **Challenges of ERPS**

As mentioned above, though ABC organization being experienced benefits from the SAP, at the same time faced significant number of challenges. As the major challenge, many respondents in the ABC organization pointed out that SAP was using an advanced computer system without any prior training. Many authors in literature mentioned the above situation in their studies also. Public administrations like ABC organization tend to have a challenge due to lack of training on ERP. Timbrell (2008) studied knowledge management of SAP implementation projects in the Queensland (Australia) government, and found there was significant doubt that users had the ability to run, maintain, or configure such systems properly. There are several hypotheses about this lack of knowledge: inadequate training, lack of curiosity on the part of users (for exploring the system).

In addition to that many authors pointed out that accountant in public administrations tend to have a lack of practical knowledge about ERP (Timbrell, 2008; Balzli & Morard, 2012). In the case of ABC the researcher found that many accountants still do not have a hundred percent awareness about the SAP functions even after four years from the implementation. Cacciagudi Fahy et al. (2002) outlined the difficulties that public sector organizations may face in trying to

initiate changes to work practices and conditions. They noted that such changes often require approval by union representatives. In the case of ABC organization, the situation was same. Some respondents of the ABC organization expressed the differences between the public and private sectors. They mentioned that accountants and accounting managers in the private sector tend to have better educational backgrounds and more experience with ERP projects than the public sector. Some authors in literature have found important general differences between the public and private sectors. For example, Chang et al. (2000) and Timbrell (2008) described ERP implementation in the public sector, and stated that the issue of "ERP knowledge management" is most problematic in a government context.

Further, there appeared a range of opinions and findings in the literature. According to the findings of the ABC, the researcher believes that research on ERP implementation in the private sector most likely cannot be applied effectively to the public sector. Because when compared public sector and private sector, ABC organization is the only public sector organization which implement the ERPS in the Sri Lankan context (Personnel communication, October 29, 2014).

Thus, the public sector has only limited experience with ERP implementation compared to the private sector (Wanger & Lederer, 2004). Therefore, another challenge facing ABC organization is having a limited experience with ERP in public sector. Further, many studies have revealed that organizational, cultural, and staff changes or reduce the staff can result from an ERP system implementation (Kumar et al., 2002; Granlund & Malmi, 2002; Sutton, 2008). Yet, those findings do not match with the researchers' findings. As the finance

manager- financial reporting and budgeting explained; "No, as a public sector organization we are unable to carry out such a radical change within ABC organization. If government policy makers planned to reduced staff as private sectors do many obstacles may occur within corporation as well as country" (personal communication, November 13, 2014).

According to the findings, it is clear that though ERP brings noticeable changes to the organizations, there cannot observe changes like any reduction of the staff or cultural or organizational change, at ABC. On the other hand, some respondents explained that SAP was implemented at the ABC without any prior feasibility study. As mentioned by the respondents in their words "simply it is a copycat" (personal communication, October 29, 2014). As the internal audit manager believes even four years after the implementation of SAP, ABC is unable to implement the system very efficiently.

However, SAP provides significant number of Challenges as well as benefits. According to the case of ABC, the researcher found that many of those challenges arise due to lack of proper training, lack of skilled people, lack of practical knowledge about ERP in public administration (Timbrell, 2008; Balzli & Morard, 2012).

According to the findings of the ABC, the researcher identified that ERP implementation in the private sector cannot be applied effectively to the public sector. ABC organization is the only public sector organization which implement the ERPS in the Sri Lankan context (Personnel communication, October 29, 2014). Thus, the public sector has only limited experience with ERP implementation compared to the private sector (Wanger & Lederer, 2004). Therefore, another challenge facing ABC organization is

having a limited experience with ERP in public sector. Much of the existent literature does not agree on the impact of ERP on the finance and accounting fields. Some authors have argued that its impact is limited (Granlund & Malmi, 2002; Scapens & Jazayeri, 2003). The researcher found that though the ERPS do not make radical

change to the ABC it has streamlined the accounting process through visibility, control and high quality, real time information. Further, it has changed the ways of working in the accounting division while enhancing and enriching the scope of the accountants' role. Moreover, it has brought out the accounting process from the accounting division to the entire organization while converting the accounting process forward oriented. However, the researcher found that weaknesses of the public administration diminish the impact of ERPS on the accounting process of the ABC organization.

### **CONCLUSION**

The purpose of this part is to provide a summary of the study and provide key findings in a nutshell. Finally, limitations and suggestions to future researches are also discussed.

### **Key Findings**

The objectives of this study were to identify the consequences of ERPS on accounting practices of the ABC organization, to explore the impact of ERPS on role of accountants of the ABC organization and to identify the benefits and challenges of the ERPS of the case organization. To understand the practical consequences of the ERPS on accounting process, identifying the changes in the accounting practices, roles of accountants and benefits and challenges derived through the ERPS is very much necessary. Further, need to identify the changes, exploring the accounting process prior and

after the implementation of ERPS. Thus, in this study the accounting practices and the accountant's role prior and after the implementation of ERPS and the benefits and challenges of ERPS in ABC organization is scrutinized. Through the evaluation of data collected in the study, it is identified that ERPS has brought in

considerable changes in the accounting process in ABC organization. Although the ERPS has not influenced in adopting new accounting methods and techniques, it has aided the organization to improve the accounting process of the organization. Specific characteristics of ERPS such as integration, standardization and centralization have contributed to the changes in the accounting process (Scapens & Jayazeri 2003). ERPS facilitates incremental changes to the accounting process of the organization rather than changing the process radically. Although, there are no fundamental changes in the accounting practices/techniques by the implementation of the ERPS, yet, enlarge the roles of the accountants. Thus, the present study found that, through the study conducted it is found that, ERPS implementation facilitate the efficient and effective use of accounting while enlarge the role of accountants. But, in the case of public sector organization, it diminishes the effectiveness and efficiency of ERP system's due to weaknesses of public administration.

### **LIMITATIONS**

As this is a qualitative study, the ability to generalize the findings is a significant limitation that the researcher confronted. Since the present study is conducted as a single case study, applicability of the findings to the other businesses is limited. The current study is limited to an organization in public sector in Sri Lanka. Hence, the findings of the study might not be comprehensively applied to

the other private sector business in Sri Lanka as the nature of the sector influences the nature of accounting process.

### FUTURE RESEARCHES

Since this study is limited to accounting process, a future study could be carried out as to study the impact of ERPS on all business functions. By scrutinizing all the business functions, researchers can identify how the ERPS affect the whole business. This research is decided as a single case study due to the time constraints. However, a future research is possible on multiple case studies. Through multiple case studies, researchers can get a better knowledge on practical consequence of ERPS as it is able to compare and contrast the practices of more than one case. Multiple studies could be undertaken in the same sector and/or different sectors.

Finally, a longitudinal study is also possible on this phenomenon by selecting a company, which anticipates implementing an ERPS. Through the study, it can completely analyze how the ERPS implementation influences the accounting process of the organization. Thus, the researchers could gain an in depth knowledge on the consequences of ERPS.

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