EFFECT OF ERP ON THE ROLE OF FINANCIAL ACCOUNTANTS IN SRI LANKA

Sampath, C

Bandara, J

Chathuranga, S

Jayasumane, L

Liyanage, B

Perera, C

Perera, Y

Samarasinghe, T

Wijesuriya, M .

Wimalasoriya, S

Abstract

In the concurrent business environment, many of the business organizations have adopted Enterprise Resource Planning systems (ERP) with the objective of enhancing the effectiveness and efficiency of their overall operations. The implementation of an ERP system facilitates the integration of different business functions, which provides valuable information for decision makers. It is widely argued that ERP has replaced the Accountant, however in reality the role of the accountant has changed in terms of diverse operations performed by an accountant.

This research paper is mainly focused on identifying how ERP has affected the role of Financial Accountant in terms of differing operations performed by the accountant in Sri Lankan context. The area of study was selected subsequent to a systematic literature review conducted in the research area without placing a time restriction. Primary data was collected through a questionnaire which was distributed among the selected sample participants.

The research revealed that the level of involvement of the accountant in different operations have changed due to ERP, whereas the degree of change varies based on the activity. Moreover the ERP aids the accountants to carry out sophisticated analysis. Regardless of efficiency improvements in terms of time saved, the technological advancements have failed to replace the accountant, due to the qualitative aspects incorporated in the role of an accountant.

Keywords: Enterprise Resource Planning, Role of Accountant, Impact

Introduction

The ERP systems can be introduced as one of the best technological solutions for effective and efficient information management (Francoise et al., 2009). It ensures that all activities of the organization are integrated (Maguire et al., 2010). According to Kale (2000), all operational information of every process from various departments is combined into one data base in ERP system and it is imported to accounting department. This shows the importance of the ERP system in the accounting function of organizations.

As per Chen (2001), the supervisors think that implementing an ERP system changes the role of the accountants. Moreover, since the accountants are embedded parts of the accounting functions they directly face the effects of the ERP system. These effects might hinder the performance of all departments and professionals of the organization in various ways. These professionals will have different viewpoints on how they can overcome those obstacles.

Chen (2001) has stated that Desormeaux (1998) has agreed that since the accountants are the information providers and analysts for departments, ERP implementation raises the role and position of the accounting department and accountants. The findings of the study will be useful for various parts of the society including the potential accounts and professional bodies.

Research Question

Development in information technology has created new opportunities as well as many challenges in the modern business context. It is one of the key drivers of change as it integrates almost all aspects and functions of the organization. Hence indeed the profession of accounting had undergone various forms of transformation alongside the ever changing technological advancements.

Given this context, under mentioned research question was identified.

- What is the impact of ERP on the role of Financial Accountant in terms of level of involvement of accountant in differing operations performed? Such as data entry, preparation of financial statements, management reporting, decision making, taxation and communication.

Overall Objective

Following are the objectives of the research.

- Identify whether the ERP had affected the role of the accountant in terms of accountant's involvement in performing identified operations.
- Evaluate the extent of the impact, subsequent to implantation of ERP on different activities performed by an accountant.

Significance of the study

Enterprise Resource Planning (ERP) systems are becoming an increasingly common tool where the systems are now being implemented in the medium scale organizations in addition to the large scale organizations. Hence the role of Accountant in particular has been impacted to a greater extent leading from a traditional number cruncher into more towards a decision maker.

In reviewing literature it was observed that even though role change of the management accountant have being extensively researched, the area of role change of the financial accountant is at a minimal level. Thus this study attempts to provide insights and add new knowledge to the area of role change of finance accountant due to implementation of ERP.

Limitations of the study

This research was undertaken based on the responses obtained from the financial accountants operating in the manufacturing sector in Sri Lanka. Due to the vast usage of ERP systems in different industries the study was limited to the manufacturing industry.

For the purpose of analyzing the change in the role of accountant, we have established five main operations discharged by a financial accountant. Hence the role of the accountant is limited in terms of the differing functions performed.

Furthermore this study does not address the limitations of ERP systems which diminish their effectiveness.

Literature Review

ERP system and importance

Scapens et al., (1998) state that ERP systems can be described as configurable, standard application software which includes integrated business modules for the core processes and functions of an enterprise, that seek to present a holistic view of the business from a single information and IT infrastructure. Dechow and Mouritsen point out that, integration means that the entry of data in one module affects the data and the operations of some or all other modules included in the system. Wessels (2005), explains that information technology can be seen as one of the key drivers in a changing business environment as it is integrated into almost all aspects of business

ERP system has replaced most of the repeated task relevant to the role of accountant. Hsuech, et al. (2012) claims under successful ERP implementations, data quality increases, decision making is improved, and the percentage of reports automatically generated by the ERP system is greater than under the traditional Information Systems. In a dynamic environment ERP system is an essential resource to gain competitive advantage. In the last two decades, ERP system has been one of the best technological solutions for the effective and efficient information management (Francoise et al., 2009)

Responsibilities of an accountant in an ERP environment

Hsuech, et al. (2012) suggest that "the transaction data handler and the financial report provider" are the main roles accountants play after ERP implementation. Vemuri and Palvia (2006) describe that, accountants should actively provide the management with up-to date information to help them make decisions under ERP environment. Similar to this Desormeaux (1998) expresses that, after ERP implementation, accountants become makers of financial statements from data recorders. They provide the analysis of management information for the company to make decisions so the management is able to get integrated information in a short time.

Impact of ERP system

ERP system also brings great impact on the role of accountants. It has replaced or consolidated many functions of accountants. This may change the nature of their job. They have to face the new environment with a positive attitude. Hsuech, et al. (2012) Granlund and Malmi (2002) describe that, ERP systems provide easier and faster access to standardized operational data, enhanced forecasting, emphasized the accounting department as the "nerve center", reduced the need for accountants to handle routine tasks, and gave accountants more time for sophisticated analyses.

Wang (2003) also confirm the above opinions: The importance of "financial analysis" has risen since ERP implementation. That complies with the viewpoint of scholars that the focus of accountants' work is directed towards providing analysis and immediate information for decision making. (Wang, 2003)

For the changes of operations in each group, review of front-end data mapping was decreased because ERP system integrates business processes and provides the instant access to integrated data across the entire enterprise to improve operational efficiency (Chou and Chang, 2008; Ke and Wei, 2008; Liang et al.,2007).

Cheng (2001) also explains accountants are evaluators in the evaluation stage before ERP implementation. During ERP implementation, accountants are communicators and coordinators of front-end departments. After ERP implementation, accountants work in internal operations of a company instead of data input and collation.

ERP system in the field of accounting is indispensable; however, ERP system also brings great impact on the role of accountants by replacing or consolidating responsibilities (Hsueh, *et. al.,* 2012).

Expertise required by an accountant in an ERP environment

For instance, it is argued (Scapens et al., 1998, 2003) that keeping abreast of technology is critical to increased opportunities for accountants to optimize performance and expand services. Caglio (2003, p. 145)

According to the findings of Sayed, HE (2006) now it is not only a matter of computer knowledge but experience with new advanced packages is becoming a prerequisite. See yourself the adverts in newspapers and what they are putting forward as requested qualifications. Also Sayed, HE (2006), concludes that Rather than a

threat, accountants mobilize the advent of ERP as an occasion where their skills and their accounting knowledge are represented as important for the proper functioning of these technologies.

Impact of changing technology

The impact of changing technology cannot be merely confronted to any single industry or profession. Wessels (2005), explains that information technology can be seen as one of the key drivers in a changing business environment as it is integrated into almost all aspects of business. Further, Hsueh, et al. (2012) elaborates the importance of reforming enterprises to gain competitive advantage in today's competitive environment and the fastest and most effective way to achieve this goal is to introduce a new information system (IS). Adding more on introducing ISs, Spathis and Constantinides (2003) suggest Enterprise Resource Planning Systems (ERP) could be seen as the most sophisticated Information System development that provide the means for management to respond to the increasing business needs in more effective and efficient ways of integrating business applications using real-time information.

Hypothesis

In light of first objective of the study i.e. identify whether the ERP had affected the role of the accountant in terms of accountant's involvement in performing identified operations, four hypothesis were developed as follows.

H_{0A}: ERP had not affected accountant's level of involvement in taxation operation

H_{1A}: ERP had affected accountant's level of involvement in taxation operation

H_{0B}: ERP had not affected the level of involvement of accountants in data entry and authorization

H_{1B}: ERP had affected the level of involvement of accountants in data entry and authorization

H_{0C}: ERP had not affected the accountant's involvement in management reporting operation

H_{1C}: ERP had affected the accountant's involvement in management reporting operation

H_{0D}: ERP had not affected the accountant's involvement in preparation of financial statements

H_{1D}: ERP had affected the accountant's involvement in preparation of financial statements

Methods

The empirical evidence presented in this research article is solely obtained via the questionnaires sent to financial accountants who are employed in the manufacturing sector companies in Sri Lanka. Financial accountant in the study represents the person who directly report to the finance manager of the respective organization. Questionnaire consists of two main parts in which, the first part capture demographic details of the respondent and the second part is designed to capture how the role of accountant has affected due to implementation of ERP. Through the study of literature, 5 different operations and 21 different activities performed by an accountant or any other designation working under the capacity of an accountant were identified which was subsequently used to capture the impact of ERP on the role of accountants. Tax compliance, Data entry and transaction processing, Management Reporting, Financial reporting and Communication were the five distinct operations used in the study to define the Role of an accountant.200 questionnaires were distributed physically and via e-mails from which 111 questionnaires were returned representing a 55% response rate. Out of the 111 questionnaires received, 103 completed questionnaires were used for the purpose of analysis. Respondents who did not possess any professional qualification and respondents who did not fall into the financial accountant category were not captured for the study.

Analysis & Discussion

Among the respondents, there were 43 females and 60 male respondents. Demographics indicate that approximately 95% of the respondents have completed their tertiary education. 54 respondents were between 20 to 30 years of age, 40 respondents were between 31 to 40 years of age and 9 respondents were between 41 to 50 years of age. In total 65 respondents were professionally qualified and the rest were partly qualified.

Initially, the reliability of the questionnaire was tested using Cronbach's alpha test. According to the output of the test which is 0.823, it is confirmed that the reliability is high in the questionnaire. i.e. the internal consistency between the questions included in the questionnaire is high. Table 10-1 represents the output of the reliability test performed.

Table 10-1: Reliability Statistics of the questionnaire

Cronbach's Alpha	N of Items
0.823	39

Source: Author constructed

The questionnaire results are analyzed in three sections. A cross tabulation analysis is performed in section 10.1 in order to analyze how different male and female accountants perceive the level of involvement in the given roles before and after implementing ERP. Section 10.2 includes a paired sample t-test performed to question number 8 in the questionnaire in order to examine whether the level of involvement has changed due to implementing ERP. Accordingly four hypothesis are built for the analysis purpose and the analysis will conclude with the findings for the first objective of the research which is to "identify whether ERP has affected the role of the accountant. Final section of the analysis is based on a one sample t-test performed to question 9 in the questionnaire with the objective to analyze the extent of the impact of ERP on different activities performed by an accountant under the identified roles.

Cross tabulation

Based on gender, a cross tabulation analysis was carried out to question number 8 on both scenarios before and after ERP implementation. The analysis was carried out for the purpose of finding out how the responses would differ based on gender, for the level of involvement on the activities carried out by the accountant both before and after implementation of ERP.

For the purpose of analysis, the responses were grouped into three subcategories. Least involved and less involved responses were combined and renamed as less involved, more involved and most involved as highly involved and the rest of the responses were considered as moderately involved.

Table 10-2: Cross tabulation analysis based on how accountants perceive the level of involvement.

		Before Implementation		After Implementation	
Role	**Level of Involvement**	**Female**	**Male**	**Female**	**Male**
Tax Compliance	Less Involved	18.70%	8.30%	32.60%	16.60%
	Moderately Involved	30.20%	23.30%	18.60%	15.00%
	Highly Involved	51.20%	68.30%	46.50%	66.70%
Data Entry	Less Involved	23.20%	40.00%	79.10%	91.70%
	Moderately Involved	32.60%	23.30%	11.60%	3.30%
	Highly Involved	44.20%	36.70%	9.30%	5.00%
Management Reporting	Less Involved	32.60%	23.30%	27.90%	6.70%
	Moderately Involved	25.60%	21.70%	16.30%	45.00%
	Highly Involved	41.90%	55.00%	55.80%	48.40%
Financial Reporting	Less Involved	4.70%	3.30%	30.20%	13.30%
	Moderately Involved	11.60%	11.70%	14.00%	35.00%
	Highly Involved	83.80%	85.00%	55.80%	51.70%
Communication	Less Involved	39.50%	36.60%	30.20%	25.00%
	Moderately Involved	16.30%	23.30%	18.60%	15.00%
	Highly Involved	44.20%	40.00%	51.20%	60.00%

Source: Author constructed

Tax Compliance

Before implementation of ERP 18.7% of total female accountants have been less involved in the tax compliance activity (table 10-2). Considering the after implementation responses it is clear that the percentage has increased by 13.9% resulting 32.6% of the female respondents responding to the less involved category. When considering the responses of Males it also depicts that the respondents who have responded to highly and moderately involved category before implementation of ERP has shifted to less involved category after implementation of ERP function. Therefore it can be inferred that accountants perceive ERP has resulted in reducing the involvement of accountants in the role of tax compliance for a certain extent.

Data Entry

Notable changes in level of involvement was depicted in the data entry function pre and post implementation of ERP. Before implementation of ERP, approximately around 23% of female accountants have responded that they are less involved in the function while 32.6% were moderately involved and the rest of 44% were highly involved. But the responds after implementation has drastically changed reducing the highly involved percentage by 40% and increasing the less involved percentage up to 79%. The similar scenario can be seen in the responds of male accountants as well. 40% of males have responded that they were less involved in the data entry function before implementation and this ratio has increased up to 92% in the after implementation phase. This indicates that the level of involvement of an accountant has drastically reduced due to ERP implementation in organizations. This may probably due to reasons of establishing new roles such as data entry operators instead of book keepers in the field with the introduction of ERPs. Furthermore, the entry part is being outsourced to third parties so that the accountants focus more on decision making and management reporting aspects of an organization.

Management Reporting

As mentioned above, clear increase in the level of involvement in management reporting function after implantation of ERP is visible when compared to before implementation. Both male and female response to the less involved category has reduced and the responses have been shifted to the moderately involved and highly

involved categories. Responses of female accountants have been shifted from less involved to the highly involved category by 23% while responses of males have been shifted towards moderately involved category by the same percentage. This implies that female accountant's roles have evolved from data entry perspective to the management reporting aspect, as a result of implementation of ERPs.

Financial Reporting

Considering the involvement in financial reporting function, it can be seen that both male and female accountant's involvement in the function has been reduced (table 10-2) i.e. Responses have been shifted from highly involved category into less involved and moderately involved category. This might have occurred since the ERP facilitates easier and time savings in preparation and presentation of financial statements. Unlike operating in a non ERP environment, the professionals working under an ERP environment are able to generate monthly and quarterly reports in a fraction of a second. Trial balances can be extracted in a given point in time and it is just a matter of compiling and presenting of financials statements at the end of the reporting period.

Communication

A significant change is visible in both male and female accountants in the role of involvement in communication. Before implementation of ERP around 40% - 45% of males as well as females have responded that they are highly involved in the role of communication. With the implementation of ERP 60% of males and 51% of females have responded to the highly involved category which shows that the involvement in the role of communication has increased for both genders and the increase is substantial in the category of male accountants. This may occur due to increased need of interdepartmental communication due to the implementation of ERP. For an instance with the implementation of ERP finance department is not solely responsible for entering double entries to the system. Each division can update the accounting related information of the respective division and those will be collaborated and presented by the finance division. Therefore finance department which was carrying out intra department communication, now communicates with all most all the divisions such as Operations, HR, R&D, Marketing etc. As a result, the level of involvement in the role of communication of accountants have changed from less involved to highly involved category.

Paired Sample t-test

Table 10-3: Paired sample t-test analysis carried out for the level of involvement in the roles performed by accountant

					95% Confidence Interval of the Difference				
		Mean	Standard Deviation	Standard Error Mean	Lower	Upper	t	df	Significance(2-tailed)
Pair 1	Q8.1.a - Q8.1.b	0.301	1.018	0.1	0.102	0.5	3.001	102	0.003
Pair 2	Q8.2.a - Q8.2.b	1.282	1.088	0.107	1.069	1.494	11.95	102	0.000
Pair 3	Q8.3.a - Q8.3.b	-0.136	1.686	0.166	-0.466	0.194	-0.818	102	0.415
Pair 4	Q8.4.a - Q8.4.b	0.767	1.246	0.123	0.523	1.011	6.246	102	0.000

Source: Author constructed

For further analysis purpose a paired sample t-test was carried out for question number 8. Through this it is expected to examine whether the ERP implementation has affected the level of involvement of accountants in the roles of tax compilation, data entry, management reporting & financial reporting. Accordingly, the above hypothesis were built. (Refer hypothesis section).

For the roles of Tax compliance, Data entry, and Preparation of financial statements the t-test carried out depicts that the sig value is less than 0.05 according to table 10-3. Which implies that the null hypothesis built for those roles has to be rejected. This indicates that the respondent's level of involvement in the above mentioned operations have significantly changed due to the implementation of ERP. The table 10-4 below show the outcomes of the frequency analysis carried out for the different roles carried out by an accountant. The resulting mode value in the given table describes the level of involvement of accountant in the respective roles before and after implementing the ERP system. Based on the outcomes it further emphasize that the level of involvement of the accountant for the roles of tax compliance, data entry and financial reporting have changed due to implementation of ERP.

Table 10-4: Frequency Table

		Q8.1.a	**Q8.2.a**	**Q8.3.a**	**Q8.4.a**	**Q8.1.b**	**Q8.2.b**	**Q8.3.b**	**Q8.4.b**
N	Valid	103	103	103	103	103	103	103	103
	Missing	0	0	0	0	0	0	0	0
Mode		5	4	4	5	4	2	4	4

Source: Author constructed

In contrast for the role of Management reporting the resulting sig value is above the threshold which in turn infers that the respondents do not perceive that the level of involvement in the operation has been affected due to the implementation of the ERP system in the organization. Based on the mode values given in table 10-4 it can be further emphasized that the there is no change in the level of involvement for the role of management reporting. In general it can be concluded that even though the level of involvement of accountants have been affected/changed due to ERP implementation for some of the operations, level of involvement in operations such as management reporting remain unchanged due to implementation of ERP in the organization.

One sample t-test

In order to analyze the extent of impact of ERP implementation on the role of financial accountant in terms of differing operations performed, five distinct operations performed by an accountant or any other designation working in the capacity of an accountant were identified through literature. For further analysis purpose, these operations were disaggregated into 21 different activities, and responses were gathered on a 5 point likert scale on the question to indicate in their opinion to what extent has ERP affected their company in the identified activities after the implementation of ERP. The applicable responses were set as 1 being least affected, 3 being moderately affected and 5 being the most affected activity due to the implementation of ERP.

When quantifying the impact of ERP, responses of each activity was tested using one-sample t-test and the response which indicated moderate impact, was taken as the population mean. One-sample t-test in general asserts whether there is a statistically significant difference between the sample mean and a pre-determined population mean. Hence in the study, one-sample t-test was adopted to test whether the mean responses provided by accountants under each activity were statistically significantly different to the population mean which considered a moderate impact. Table 10-5 below summarizes the findings of the t-test.

Table 10-5: One sample t-test

Activities performed by an accountant	Test Value = 3					
					95% Confidence Interval of the Difference	
	t	Df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Filing of Tax Returns	6.1243	102	0.0000	0.5825	0.3939	0.7712
Time spent for Tax Computation	8.4598	102	0.0000	0.7379	0.5649	0.9109
Accuracy of Tax computation	9.4672	102	0.0000	0.8058	0.6370	0.9747
Tax Planning	4.5724	102	0.0000	0.5631	0.3188	0.8074
Average Tax	7.9308	102	0.0000	0.6723	0.5042	0.8405

Preparation of J/Es	10.4673	102	0.0000	0.7864	0.6374	0.9354
Authorization of J/Es	11.3148	102	0.0000	1.0291	0.8487	1.2095
Time spent on Bank Reconciliations	6.6270	102	0.0000	0.6019	0.4218	0.7821
Time spent on Creditor/debtor Reconciliations	6.7156	102	0.0000	0.5825	0.4105	0.7546
Time spent on Current Account Reconciliations	6.7102	102	0.0000	0.5534	0.3898	0.7170
Authorization of Reconciliations	8.3189	102	0.0000	0.8544	0.6507	1.0581
Time spent on transaction processing	13.8169	102	0.0000	1.1165	0.9562	1.2768
Average Data Entry	14.2106	102	0.0000	0.7892	0.6790	0.8993
Involvement in preparation of budgets	6.6322	102	0.0000	0.5825	0.4083	0.7567
Time spent for budgeting	8.0889	102	0.0000	0.7864	0.5936	0.9792
Flexibility of information generation	12.5572	102	0.0000	1.0777	0.9074	1.2479
Working capital controls	8.5840	102	0.0000	0.6990	0.5375	0.8606
Average Mgt Reporting	10.5680	102	0.0000	0.7864	0.6388	0.9340
Better drill-in potential	11.7660	102	0.0000	1.1165	0.9283	1.3047
Detailed and sophisticated analysis	13.0071	102	0.0000	1.2330	1.0450	1.4210
Information overload	4.5669	102	0.0000	0.5340	0.3021	0.7659
Average Decision Support	11.4131	102	0.0000	0.9612	0.7941	1.1282
Preparation of Financial Accounts	13.7642	102	0.0000	1.0388	0.8891	1.1885
Preparation of Monthly/Quarterly accounts	15.3115	102	0.0000	1.1456	0.9972	1.2940
Closure of Monthly/Quarterly accounts	10.3066	102	0.0000	0.9903	0.7997	1.1809
Average Fin Account	14.7177	102	0.0000	1.0583	0.9156	1.2009

Interdepartmental Communication	12.8655	102	0.0000	1.0194	0.8623	1.1766
Interdepartmental Integration	15.2822	102	0.0000	1.3204	1.1490	1.4918
Average Communication	16.1286	102	0.0000	1.1699	1.0260	1.3138

Source: Author constructed

Taxation Operation

Tax compliance is one of the significant operations performed by an accountant in any organization. There are a number of complexities arising within this operation, especially in the Sri Lankan context, as organizations are exposed to a number of complex and different taxes with differing due dates of return submissions. According to the aforesaid analysis of paired sample t-test, it was revealed that implementation of ERP had significantly affected the role of accountant in relation to tax compliance function. This fact is further supplemented by one sample t-test table 10-5, which was carried out to test the extent of the impact under the null hypothesis *'$H_{oA1:}$ Extent of impact of ERP on Tax Compliance function is not statistically significantly different to a moderate impact'*. Sig value for tax compliance operation and different activities carried out under tax compliance operation was less than 0.05 (p<=5%), hence the null hypothesis H_{oA1} will be rejected suggesting that extent of impact of ERP is statistically significantly different than a moderate impact.

Adding further to the results of the t-test, skewness for each activity depicted a negatively skewed distribution which suggests the accountants perceived that ERP had highly and positively affected the activities carried out under tax compliance operation within their organization. Table 10-6 below summarizes descriptive statistics for tax compliance operation. Accordingly, activities namely, efficiency in filing of tax returns and computation of taxes depict an approximately symmetric distribution (as Skewness is between -0.5 and +0.5) which suggest the impact of ERP on the same were more or less moderate. On the contrary accuracy of tax computation and tax planning are moderately negatively skewed (Skewness between -0.5 and -1), suggesting a high impact of ERP on performing such activities. The average response for tax compliance operation as a whole depicts a highly negatively skewed

distribution, which suggest that implementation of ERP had significantly and positively affected the tax compliance operation as a whole.

Table 10-6: Descriptive statistics – Tax compliance operation

	Statistics							
Activities performed by an accountant	Mean	Std. Deviation	Std. Error Mean	Median	Mode	Skewness	Min	Max
Filing of Tax Returns	3.5825	0.9653	0.0951	4	4	-0.2719	2	5
Time spent for Tax Computation	3.7379	0.8852	0.0872	4	4	-0.4943	1	5
Accuracy of Tax computation	3.8058	0.8639	0.0851	4	4	-0.6344	1	5
Tax Planning	3.5631	1.2499	0.1232	4	4	-0.5611	1	5
Average Tax	3.6723	0.8604	0.0848	4	4	-0.7479		

Source: Author constructed

Transaction Processing

Transaction processing includes basic data entry, accounting for journal entries, and preparation of various reconciliation statements and authorization of such manual inputs. Table 10-6 above present the sig value for all activities considered under transaction processing is less than 5%, suggesting the mean responses provided by accountants are statistically significantly different from the moderate perception. Hence the null hypothesis '*H_{0B2}: The Extent of impact of ERP on data entry and authorization is not statistically significantly different to a moderate impact'* will be rejected. This fact was further complemented by the paired sample t-test above. It also concluded that ERP had significantly affected the level of involvement of accountant in data entry.

Descriptive statistics on the same (Table 10-7) also depicted a negatively skewed distribution to all activities considered under transaction processing. Nonetheless, time spent on authorization of journal entries and time spent on transaction processing depicted moderately, negatively skewed distributions, while other activities conform to an approximately symmetric distribution. Though one sample t-test suggest

transaction processing operation as a whole has been affected by the implementation of ERP, skewness suggest this effect is most apparent on authorization processes, rather than on preparation of accounting related entries and reconciliations. This is due to the practices followed by the organizations to maintain physical supporting documents of accounting entries for cross references, audit purposes, legal and statutory requirements. Hence the benefits of integrated ERP systems cannot be materialized by the accountants.

Table 10-7: Descriptive statistics – Transaction processing

	Statistics							
Activities performed by an accountant	Mean	Std. Deviation	Std. Error Mean	Median	Mode	Skewness	Min	Max
Preparation of J/Es	3.7864	0.7625	0.0751	4	4	-0.2932	1	5
Authorization of J/Es	4.0291	0.9231	0.0910	4	4	-0.8974	1	5
Time spent on Bank Reconciliations	3.6019	0.9218	0.0908	4	3	-0.3445	1	5
Time spent on Creditor/debtor Reconciliation	3.5825	0.8803	0.0867	4	3	-0.3005	1	5
Time spent on Current Account Reconciliation	3.5534	0.8370	0.0825	4	3	-0.2232	1	5
Authorization of Reconciliations	3.8544	1.0423	0.1027	4	4	-0.4968	2	5
Time spent on transaction processing	4.1165	0.8201	0.0808	4	4	-0.8726	2	5
Average Data Entry	3.7892	0.5636	0.0555	3.8571	4	-0.0192		

Source: Author constructed

Management Reporting

The accountant is usually vested with the responsibility to provide financial information for management decision making. Though this function is more of the management accounting perspective, most companies in Sri Lanka do not make a distinction of financial accountant and management accountant within the organization. Instead, both functions are overlooked by the accountant. Given this

context the impact of ERP on the accountant's involvement in management reporting was tested under activities such as budgeting, working capital controls and information generation. As per paired sample t-test above, it can be concluded that the level of involvement of accountant in management reporting has not changed. Therefore the accountant is still spending the same amount of time for management reporting before and after implementation of ERP. Conversely one sample t-test (table 10-5) above, suggest the extent of the impact of ERP on management reporting function as a whole and activities considered under the same has statistically significantly changed. Therefore the accountant now has the ability to cater to varied and growing management reporting needs by spending the same amount of time as before, due to implementation of ERP.

Skewness further supplements observations of one sample t-test, by suggesting a highly skewed distribution to management reporting operation as a whole. A summary of descriptive statistics for management reporting operation is given in the table 10-8 below. It is worth noticing that the responses given for working capital controls depict a fairly symmetric distribution suggesting the impact of ERP is moderate for working capital controls discharged by the accountant. Therefore ERP provide little support in managing working capital within the organization. However, preparation of budgets and information generation for decision making purpose is highly supported by ERP.

Table 10-8: Descriptive statistics – Management reporting

	Statistics							
Activities performed by an accountant	Mean	Std. Deviation	Std. Error Mean	Median	Mode	Skewness	Min	Max
Involvement in preparation of budgets	3.5825	0.8914	0.0878	4	4	-0.9316	1	5
Time spent for budgeting	3.7864	0.9867	0.0972	4	4	-0.8053	1	5
Flexibility of information generation	4.0777	0.8710	0.0858	4	4	-0.6972	2	5
Working capital controls	3.6990	0.8265	0.0814	4	4	-0.0228	2	5
Average Mgt Reporting	3.7864	0.7552	0.0744	4	4	-1.0191		

Decision support operation

The accountant is considered to be very powerful in modern organizational context as the output of accounting facilitate or impact a variety of stakeholders when making financial/non-financial decisions (Deegan, 2014). Hence the impact of ERP on discharging decision support operation was also tested in the study in terms of assistance provided by ERP when making detailed, sophisticated analysis and the drill-in potential provided by ERP. It is also widely accepted that accountants are not carrying-out all possible functionalities provided by a sophisticated ERP system hence the perception of accountants on the amount of information generated by ERP reports was also taken into consideration under different activities such as drill-in potential, sophisticated analysis and information overload.

As depicted in table 10-5, one-sample t-test suggests that ERP had affected the decision support operation performed by the accountant. Hence the null hypothesis of *'H_{0D4}: The Extent of impact of ERP on decision making is not statistically significantly different to a moderate impact'* will be rejected.

Table 10-9: Descriptive statistics – Management reporting operation

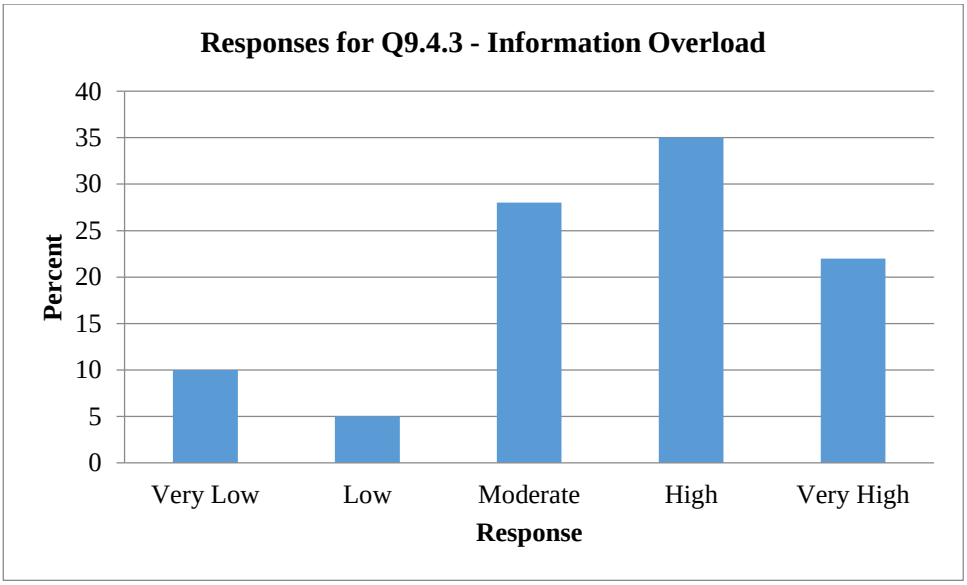
	Statistics							
Activities performed by an accountant	Mean	Std. Deviation	Std. Error Mean	Median	Mode	Skewness	Min	Max
Better drill-in potential	4.1165	0.9631	0.0949	4	4.00	-1.3793	1.00	5.00
Detailed and sophisticated analysis	4.2330	0.9621	0.0948	4	5.00	-1.6314	1.00	5.00
Information overload	3.5340	1.1867	0.1169	4	4.00	-0.6747	1.00	5.00
Average Decision Support	3.9612	0.8547	0.0842	4	4.33	-1.5619		

Source: Author constructed

Accountant's perception on the impact of ERP in facilitating detailed analysis and better drill-in potential was congruently suggested to be high (Table 10-9). On the contrary, despite the better analysis potential, a majority of accountants (58%) also perceive that ERP result in information overload. Responses provided by accountants on this activity are graphically depicted in graph 10-1 below. Therefore it could be

concluded that, accountants are not using all functionalities available in a sophisticated ERP system and rather perceive that ERP result in information overload.

Figure 10-1: Frequency graph – Responses for Q9.4.3: Information overload



Source: Author constructed

Preparation of financial statements

Preparation of financial statements and financial reporting are the most perceived roles of an accountant. The importance of the role of accountant in financial reporting at present has not significantly changed even with modern technological advances. Nevertheless, the support provided by advanced ERP systems in discharging this operation is indispensable. Paired sample t-test above concluded that the accountants perceive their level of involvement in financial reporting function has been less after implementation of ERP

Concurrently, one sample t-test revealed that extent of the impact of ERP on financial reporting process is substantially high and out of the activities performed under this function, month end adjustments have been significantly and positively affected.

When considering the extent of impact of ERP on the role of accountant, all roles have been positively affected due to the implementation of ERP. However the extent of impact is high for activities namely, tax computation, transaction processing, preparation of budgets, sophisticated analysis, closure of monthly/quarterly financial statements and interdepartmental integration.

Conclusion

This paper uses a quantitative approach to analyze the impact of ERP on the role of an accountant and to quantify the extent of the impact on different activities performed by the accountant. It was revealed that the level of involvement of the accountant in operations such as tax compliance, transaction processing and financial reporting have changed after implementation of ERP. Simultaneously, the extent of the impact of ERP on differing activities performed by the accountant depicted an above average improvement. However the degree of the impact varied from one activity to another. The analysis also depicted that the accountant's level of involvement in management reporting function has *not* changed due to implementation of ERP, but the extent of the impact of ERP on management reporting activities such as budgeting and ability for detailed analysis is high. Hence it could be inferred that accountant now has the ability for detailed and sophisticated analysis at the same amount of time spent for management reporting before and after implementation of ERP, It is worth noticing that irrespective of all advantages of ERP systems, 55% of the accountants perceive that ERP is resulting in information overload, and that management is not using all information generated from the ERP system. Technologically advanced accounting systems such as ERP have saved substantial amount of time for the accountant by improving efficiency of financial reporting and compliance. However, these advancements have failed to replace accountants due to important qualitative aspects handled by the accountants such as decision making. Nonetheless, the cost of implementation of ERP can be well justified by the outcome of the study as it clearly articulate the perceived importance of ERP in Sri Lankan organizational context.

References

Cheng, SS 2001, The role of accountants in different ERP implementation stages, Master Thesis, Chung Yuan Christian university

Chou, SW & Chang YC 2008, 'The implementation factors that influence the ERP benefits', *Decision Support Systems*, vol. 46, pp. 149-157.

Deegan, C 2014, *Financial accounting theory*, McGraw-Hill Education, New South Wales, Australia.

Desormeaux, D 1998, *New world older*, CMA Management.

Francoise, O, Bourgault, M &Pellerin, R 2009, 'ERP implementation through critical success factors management', *Business Process Management Journal*, vol. 15, no. 3, pp. 371-394.

Hsueh, JC, Shaio, YH, An, AC & Fu, CP 2012, 'The ERP system impact on the role of accountants', *Industrial Management and Data Systems*, vol. 112, no. 1, pp. 83-101.

Kale, E 2000, *Implementing SAP/R3 – the guide of business and technology*, SAMS Publishing, London.

Ke, W, Wei, KK 2008, 'Organisational culture and leadership in ERP implementation', *Decision Support Systems*, vol. 45, no. 2, pp. 208-218.

Maguire, S, Ojiako, U & Said, A 2010, 'ERP implementation in Omantel: a case study', *Industrial Management and Data Systems*, vol. 110, no. 1, pp. 78-92.

Sayed, HE 2006, 'ERPs and accountants expertise: the construction of relevance', vol. 19, no. 1, pp. 83-96.

Scapens, R 1998, 'SAP: integrated information systems and the implications for management accountants', *Management Accounting*, vol. 76, no. 8, pp. 46-48.

Spathis, C &Constantinides, S 2003, 'The usefulness of ERP systems for effective management', *Industrial Management and Data Systems*, vol. 112, no. 1, pp. 677-685.

Vemuri, VK& Palvia, SC 2006, ‘Improvement in operational efficiency due to RP systems implementation: truth or myth’, *Information Resources Management journal,* vol. 19, no. 2, pp. 18-36.

Wang, WY 2003, ‘The impacts of ERP on accounting activties’, *Journal of Contemporary Accounting*, vol. 4, no. 1, pp. 77-102.

Wessels, PL 2005, ‘Critical information and communication technology (ICT) skills for professional accountants’, *Meditary Accountancy Research,* vol. 13, no. 1, pp. 87-103.