ASSESSING THE EFFECTIVENESS AND EFFICIENCY OF ENTERPRISE RESOURCE PLANNING (ERP) SYSTEMS USED BY MANUFACTURING COMPANIES IN SRI LANKA

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ABSTRACT

Purpose

The purpose of this study is to investigate the effectiveness and efficiency of Enterprise Resource Planning (Herein after referred to as ERP) Systems used by manufacturing companies in Sri Lanka by assessing the benefits gained on the accounting process over the investment incurred.

Background

Empirical studies have been conducted to analyse the benefits of ERP Systems on accounting process of companies in western countries (Constantinides 2004) and some of those researchers have resulted in mixed results. According to the research carried out by Anders Rom Carsten Rohde in 2006, it is evident that there is no significant relationship between ERP systems and reporting, analysis, budgeting, non-financial, external and ad hoc management accounting. However, a significant positive relationship is found between ERP systems and data collection and organizational management accounting. As per researchers' knowledge there is a lack of research studies undertaken in Sri Lanka to assess the effectiveness and efficiency of ERP Systems adopted by manufacturing companies by evaluating the benefits gained on the accounting process over the cost of investment.

Methods

This research is a quantitative research in which data collection is done by survey and questionnaires. The manufacturing companies operating in Sri Lanka which use ERP systems were the population and the sample was 51 companies which represent all listed manufacturing companies & some SMEs to cover the total population. Therefore a manufacturing company is the unit of analysis. Researchers approached middle level management to collect data. Data analysis conducted using SPSS software and frequency analysis, correlation analysis, regression analysis was used as the statistical analysis technique.

Discussion and Conclusion

Dimensions that were used by the researchers to assess the effectiveness and efficiency on firms' accounting process; quality, integration, cost effectiveness, flexibility and time efficiency were extracted from the study, "Enterprise resource planning systems' impact on accounting processes" by Charalambos Spathis Sylvia Constantinides in 2004. Then researchers arrive at a conclusion as to which ERP systems are effective and efficient for the firms in relation to the cost of the investment they have incurred on the implementation.

Key words: ERP System, Accounting Process, Manufacturing companies, Sri Lanka

1. INTRODUCTION

Information Technology (IT) as the most rapidly changing and growing industry in the world, its changes have significant implications on both local and global economies, societies and institutions. As a result of that, IT incorporates with each and every function in today's business organizations with the use of Marketing Information Systems in Marketing function, Manufacturing Information Systems in production function, Accounting and Financial Information Systems in Accounting and Finance and Human Resource Information Systems in HRM.

ERP system is such business management software emerged with the development of IT and which the companies can use to collect, store, manage and interpret data from many business activities. (Oliver & Romm 2002, p. 195) defines ERP systems as large and complex integrated software packages that support standard business activities. ERP systems evolved from advanced manufacturing technologies (AMT) aimed at increasing quality, lowering inventory levels, improving customer service and manufacturing flexibility (Drury 1996). An ERP system is a generic term for an integrated enterprise-wide computing system. It encompasses a set of business applications (modules) used to carry common business functions such as accounting, stock control and logistics etc (Kavanagh 2001, p. 234). The essence of a complete ERP system to automate business processes, share common data across the organizations and most importantly, to produce real time data (Constantinides 2004, p. 234).

ERP systems ensure that all operational systems of the company are fully integrated. (Maguire 2010) An organization that has no ERP will be running on much other software that does not allow integration and customization. This will negatively affect the optimized functioning of the businesses. ERP systems provide distinct advantages to the companies adopting them. By providing real- time access to operational and financial data, ERP system allows companies to streamline their management structure and create more flexible, more democratic and flatter organizations (Davenport 1998). Also the availability of appropriate and timely information improves the decision making process resulting a higher effectiveness and efficiency in operations.

In this research article, Section 2 discusses problem statement, research questions & research objectives. Section 3 provides a review of the relevant literature and research design & methodology adopted is discussed in section 4. The research findings are presented in Section 5. Section 6 discusses the conclusions drawn from this research.

2. PROBLEM STATEMENT & RESEARCH QUESTIONS

Overview

This research paper assessed the effectiveness and efficiency of ERP systems by considering the benefits achieved on the accounting process over the investment incurred on the implementation of such systems by manufacturing companies in Sri Lanka. The manufacturing sector which comprises of 22 listed companies and many other Small and Medium Enterprises plays a major role in the Sri Lankan economy.

The core purpose of any Accounting Information system is to provide required information to a wide range of users by supporting day to day operations. ERP system integrates both financial and non-financial data in all most all processes in an organization. As per Kale (2000), the main function of ERP system is to combine all operational information needed for every process from different departments into one database and information is imported to the accounting department. Even though the ERP system can be used for all most all processes in an organization, as per researchers' knowledge, within the Sri Lankan context, the usage of ERP systems on accounting processes can be widely seen.

So it is evident that in Sri Lanka, ERP system usage prevails to a considerable extent. But as per the researchers' findings, no adequate studies have been carried out to assess the effectiveness and efficiency of ERP systems compared to the cost of investment. Hence the researchers have investigated the effectiveness and efficiency of ERP systems on accounting process used by manufacturing companies in Sri Lanka, over the cost they have incurred.

Problem Statement

Researchers focused on assessing the effectiveness and efficiency of ERP systems with respect to the factors; quality, time efficiency, integration, flexibility, cost effectiveness on accounting process over the cost of investment of manufacturing sector in Sri Lanka.

Research Question

In order to address the above identified problem, the research questions were built as follows.

- What are the positive influences of ERP systems on the quality, time efficiency, integration, flexibility and cost effectiveness on accounting processes over the cost of investment?
- What changes have the adoption of ERP systems brought in the accounting practice after the adoption of ERP system?
- What reasons have led them to use ERP systems?
- What is the most beneficial ERP system over the cost they have incurred in terms of above identified researchers' dimensions?

2.1 RESEARCH OBJECTIVES

Overall objective

To assess the effectiveness and efficiency of ERP systems on Accounting process over its cost of investment in manufacturing companies in Sri Lanka.

Specific aims

- To assess the positive influences of ERP systems on the quality, time efficiency, integration, flexibility and cost effectiveness on accounting processes over its investment cost
- To identify what changes has brought in the accounting practice after the adoption of ERP systems
- To identify what reasons have led them to use ERP systems
- To arrive at the most beneficial ERP system over the cost they have incurred based on researchers' above mentioned dimensions (quality, time efficiency, integration, flexibility and cost effectiveness)

Hypothesis

H0: There is no impact in terms of quality, flexibility, cost effectiveness, integration and time efficiency on accounting process over its investment cost after the implementation of ERP system in companies in manufacturing sector in Sri Lanka.

H1: There is a positive impact on the quality of the accounting process over its investment cost after the implementation of ERP system in companies in manufacturing sector in Sri Lanka.

H2: There is a positive impact on the flexibility of the accounting process over its investment cost after the implementation of ERP system in companies in manufacturing sector in Sri Lanka.

H3: There is a positive impact on the cost effectiveness of the accounting process over its investment cost after the implementation of ERP system in companies in manufacturing sector in Sri Lanka

H4: There is a positive impact on the integration of the accounting process over its investment cost after the implementation of ERP system in companies in manufacturing sector in Sri Lanka.

H5: There is a positive impact on the time efficiency of the accounting process over its investment cost after the implementation of ERP system in companies in manufacturing sector in Sri Lanka.

3. LITERATURE REVIEW

Introduction on ERP system

ERP is a software solution integrating the various functional spheres in an organization – a link through the entire supply chain, aimed at best industry and management practices for providing the right product at the right place at the right time, for the least cost. ERP software is the backbone of many big enterprises in the world today and these commercial packages promise seamless integration of all the information flowing through a company – financial and accounting information, human resource information, supply chain information and customer information Momoh (2010).

Evolution of ERP Systems

The adoption of ERP system has been widespread. The origin of ERP systems can be traced back to the development of standard systems for both planning and control of manufacturing. The last five years have seen an explosion in the implementation of ERP systems, such as those offered by SAP, Baan and PeopleSoft (Neely & Kennerley 2001).

Constantinides (2004, p. 234) states that recent changes in the business environment, namely, deregulation, privatization, globalization and increased competition has transformed large companies into giant multinational organizations. This changing business environment has led the companies to search for new ways to survive and succeed. Arguably the advent of the IT provided necessary tools for companies to respond effectively and efficiency to these changes.

Siriginidi (2000) suggested that as ERP evolved over the years with experimentation, it targets workflow automation by utilizing the advancements in computing and communication technologies, incorporates benchmarked business processes, viz. globalization, competition, faster response to marketplace, contains costs, efficiency improvement. Implementation of ERP facilitates enterprises to attain ``best business practices'', irrespective of their size. ERP system has become important because it uses IT to integrate information of all operations of an entire company. Ketikidis (2008) conclude that ERP system improves the competitive advantage of a company. ERP systems represent the latest and most ambitious application of administrative and computer-based technologies in IS and the implementation of an ERP system leads to organizational transformation (Wickramasinghe & Karunasekara 2012).

Challenges of ERP Implementation

According to Wood and Caldas (2001), it is inevitable that ERP implementations require a reorganization of business processes and organizational structure but, most importantly, a change of management style and culture. ERP system implementation is quite difficult, complex and high cost involving process. Successful ERP implementation requires certain factors to be satisfied. According to the study done by Francoise & Pellerin (2009, pp. 381-387), there are some critical success factors which will confirm successful implementation. Those are;

- Project teamwork and composition
- Organizational culture and change management
- Top management support
- Business plan and long-term vision
- Business process reengineering (BPR) and customization

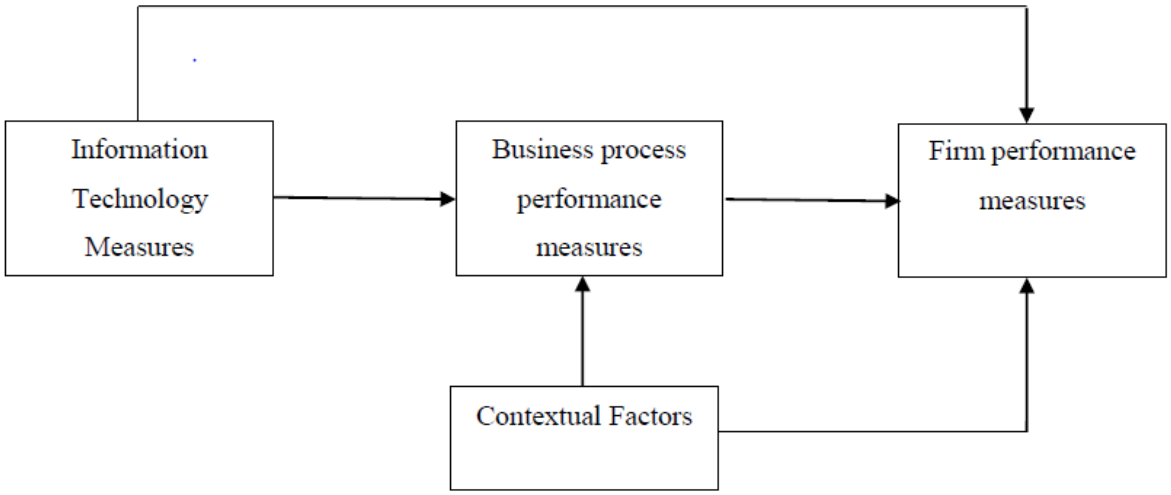
- Effective communication
- Software development, testing, and troubleshooting
- Monitoring and evaluation of performance
- Organizational structure
- End-user involvement
- Knowledge management

As per the empirical findings of this study, ERP system adoption confirm a number of changes in accounting processes such as introduction of an internal audit function, use of non-financial performance indicator, profitability analysis at segmental/product level (Constantinides 2004, p. 240).

Model foundations relating to ERP performance

Dehning and Richardson (2002) has suggested generic framework for IT performance measurement using five paths. This has been used as guidance for the development of ERP performance model.

Figure 1



Source: Dehning and Richardson (2002)

New evidence for underlying motives of ERP adaptors are integration of applications, increased flexibility in information real-time information and particularly information for decision making (Constantinides 2004). The ERP systems-induced changes to the activities of management accountants were found to be mostly as expected, with less data entry or recording and more analyses. Compared to the literature, the findings place more importance on the need for

management accountants to be IT confidence. There was a range of knowledge and skills implied, from Excel, to ERP systems, to supplementary analytical software. Management accountants were not just expected to use a range of IT products, but they were expected to be involved with the design and implementation of ERP and secondary systems (Cristóbal & Spraakman 2012).

Benefits of ERP Systems

ERP benefits positively impact on Supply Chain Management (SCM) performance. The first, the operational functions of ERP benefit are very important impact factors in improving performance of SCM in internal and external business processes. The possible explanations for the finding are: the operational cost was reduced for those Taiwanese IT firms that adopted an ERP system, probably because of the process improvement, which in turn is a result of better information flow among all of the entities in the supply chain (Chyan 2009).

Adopting ERP system in accounting assists companies to more reliable and relevance decision making process as well as high quality reporting. The most important motivations for Iranian organizations to implement an ERP is for them to improve decision-making processes, increase the need to access real-time data and to keep up with the increase in their competition (Valmohammadi 2014). By providing real-time access to operational and financial data, ERP system allows companies to streamline their management structure and create more flexible, more democratic and flatter organizations (Davenport 1998).

Focus of the study

According to the previous studies carried on ERP system implementation, it is evident that different benefits are yield by implementing ERP system in different contexts. On the other hand various researchers have found different significant degree of the identified benefits depending on the various business processes which ERP are used.

ERP systems have no significant relationship to reporting and analysis, budgeting, non-financial, external and ad hoc management accounting, and allocation of costs. However, a significant and positive relationship is found between ERP systems and data collection and organizational breadth of management accounting. It is confirmed that ERP systems are powerful tools with regard to transaction processing and integration of the organization, as data collection can be considered a proxy for transaction processing, and organizational breadth of management accounting a proxy for integration (Anders & Carsten 2006).

Our research mainly assessed the effectiveness and efficiency on accounting process over the cost of investment incurred on implementation of ERP system in manufacturing companies in Sri Lankan context. In addition to the main objective researchers analyzed the reasons led manufacturing companies to adopt a particular ERP system and what accounting methods and practices were used after the implementation of ERP system. Further researchers are arriving at the most beneficial ERP system by analyzing benefits over the cost.

3.1 SIGNIFICANCE OF THE STUDY

Nowadays ERPs has become as a widely used tool in accounting process. So the most parties pay much more attention to this, since ERPs are said to be beneficial in various aspects of the business. This study examined the effectiveness and efficiency of adopting ERP systems on accounting process over the cost of investment and thereby assesses the most effective ERP systems used by manufacturing firms in the local context. Therefore this study will facilitate both the parties, firms and the vendors. For the firms who are not much aware of using ERPs but expecting to go for ERPs in the future, can determine for which system they should go for by assessing the benefits. On the other hand, this study will benefit the ERP software vendors as to which improvements should be done with the existing software by assessing different benefits of the systems. Additionally, this study will facilitate stakeholders by providing information whether is it effective or not to implement an ERP system which may help to enhance the overall accounting process performance.

4. RESEARCH DESIGN AND METHODS

Overview

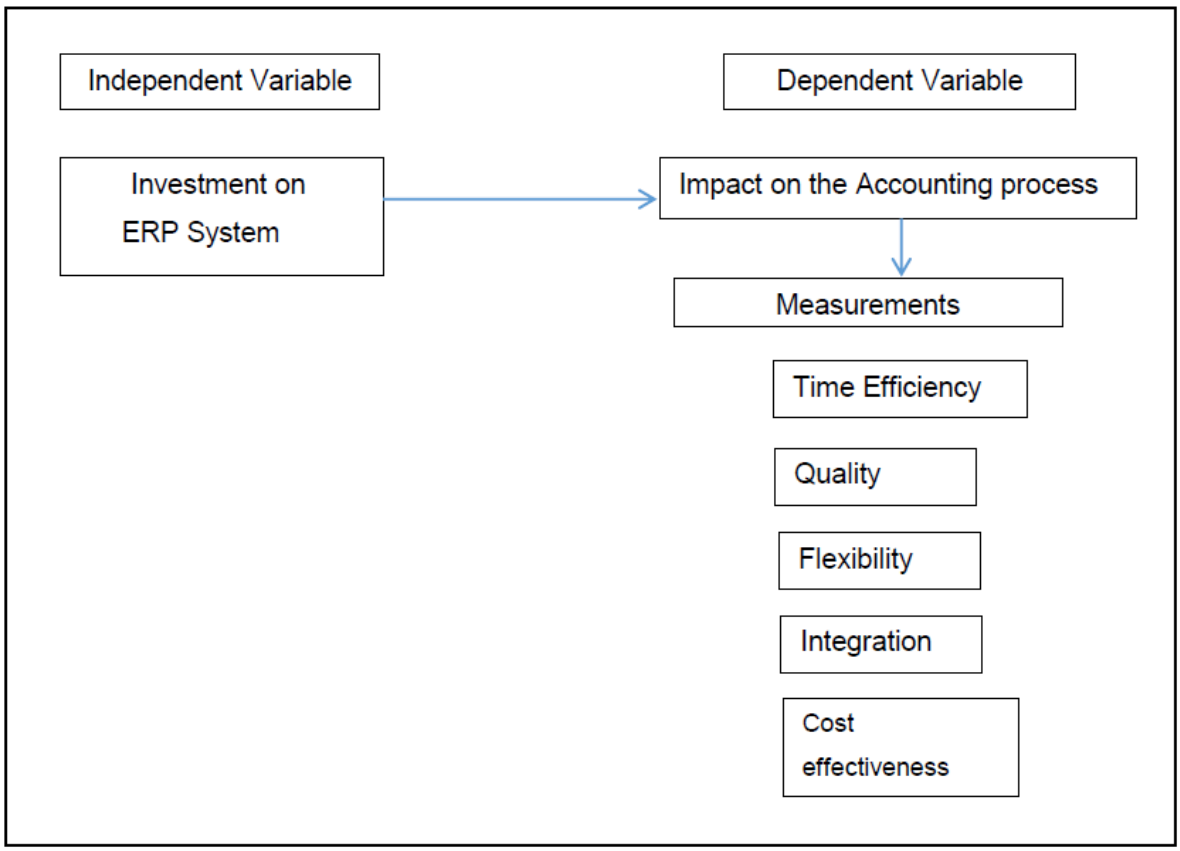
Research was designed based on following concepts to evaluate the effectiveness and efficiency ERP systems adopted by companies in the selected sample by assessing their benefits on the firms' accounting process. Companies using ERP systems in the manufacturing sector is the population of the study and an initial sample of 80 companies were selected to carry on the research. Data was collected mainly through primary data collection methods; conducting surveys by using a questionnaire. By using SPSS software, collected data was coded and was analyzed and finally arrived at the conclusion.

Conceptual diagram

Conceptual diagram was developed based on the ERP system's impact on accounting process of the selected sample. That provides an understanding on how the independent variable affecting on companies accounting process.

The independent variable is the investment cost on ERP system in the companies of the manufacturing sector. The dependent variable is the impact on accounting processes which was measured based on five dimensions.

Figure 2



Source: Authors

Population and study sample
The manufacturing companies as of 31st December 2015 who have already implemented ERPs are the population of this study and there were twenty two listed companies with many other SMEs in the sector. The study sample was 51 companies to cover the population in the selected sector of manufacturing.

Sample size and selection of sample
The sample was 51 companies which represent all listed manufacturing companies & some SMEs to cover the total population. The sample was selected through convenient sampling.

Sources of data
By using a questionnaire, data was collected as per survey method. Questionnaire was borrowed from the study on "Enterprise resource planning systems' impact on accounting processes", by Charalambos Spathis Sylvia Constantinides in 2004 and refined as it suits to the local context.

Collection of data
Study relied on primary data which was collected from ERP implemented companies in the manufacturing sector by using a questionnaire.

Exposure assessment
This research specially studied the manufacturing sector. Then the effectiveness and efficiency of ERPs on accounting processes of the companies was measured under following criterion.

- Time Efficiency
- Quality
- Cost effectiveness
- Flexibility
- Integration

These measures were analyzed with the cost of investment they incurred on implementing the particular ERP system.

Data management
Gathered information was coded and analyzed by using SPSS and then was maintained clear and complete data for the further analysis purposes for the next stage in research process. Data backups were managed using Google drive to accomplish the safety and confidentiality of the data.

Data analysis strategies
Before analysing the data the researchers checked data input error using frequency table. By running a regression analysis, a relationship between the independent and dependent variables was identified and by giving weightage to each benefit, researchers quantified them. Knowing the cost of the investment researchers identified the ERP system which gives more benefits over cost of investment.

5. DISCUSSION AND ANALYSIS

5.1 Usage of ERP systems

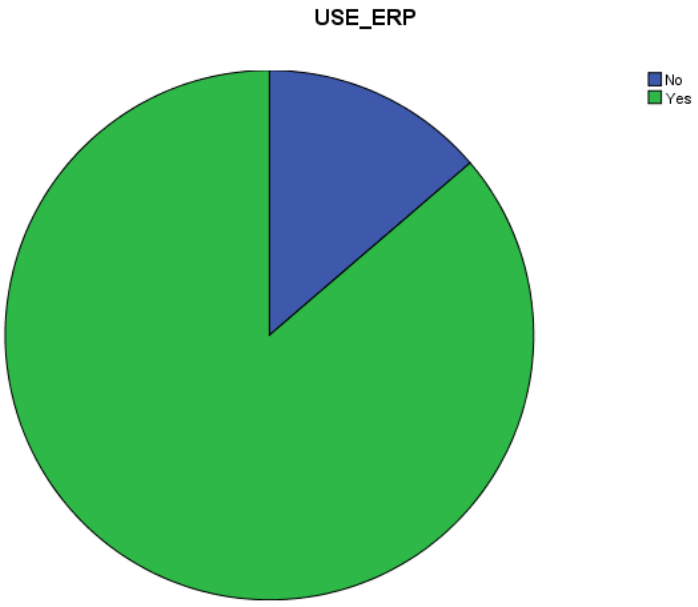
According to the study carried on assessing the effectiveness and efficiency of enterprise resource planning (ERP) systems used by manufacturing companies in Sri Lanka first the researchers paid their consideration whether companies use or do not use ERP systems in their current context. As per the study the researchers had found that 44 companies use ERP systems out of 51 companies of the researchers' sample. It takes 86.3% form the total sample. Even though we got only 51 responds we distributed our questionnaire to 80 manufacturing companies including 22 listed companies and 58 SMEs. So the response rate is 63.75%.

Figure 3: Usage of ERP systems

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	7	13.7	13.7	13.7
	Yes	44	86.3	86.3	100.0
	Total	51	100.0	100.0	

Further the following pie chart clearly shows how many companies use ERP systems and how many companies do not use.

Figure 4: Usage of ERP systems

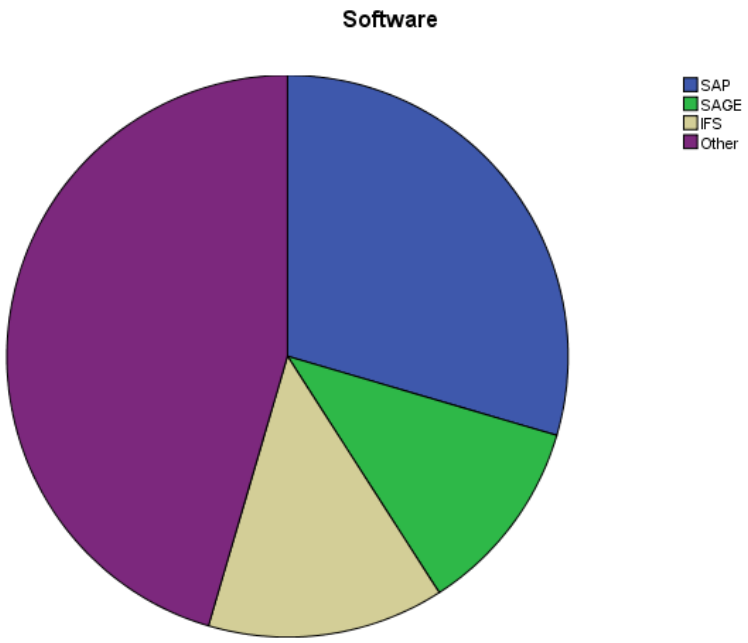


Then the researchers pay their consideration towards what type of ERP system is used by companies. As per the study the researchers found out most companies use SAP among SAGE, IFS and other ERP systems. In accordance with the sample most of the companies use AccPack, Lotus and Marksys as other ERP systems. Percentages of using ERP systems types, is 13%, 6%, 5% and 20% for SAP, IFS, SAGE and Others respectively. It is clearly shown in the following table.

Figure 5: Usage of ERP systems

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SAP	13	29.5	29.5	29.5
	SAGE	5	11.4	11.4	40.9
	IFS	6	13.6	13.6	54.5
	Other	20	45.5	45.5	100.0
	Total	44	100.0	100.0	

Figure 6



5.2 Reasons for adopting ERP systems

Apart from this researchers paid concern towards what the important motives for adopting ERP system are. Therefore, the most important reason arrived is integration of application for adopting ERP system. Furthermore, stock exchange requirement is also a prerequisite for a successful ERP implementation. And Business Process Re-engineering (BPR) is also an important reasons for adopting ERP system. Following table shows reasons for adopting ERP system with their importance.

Figure 7: Reasons for adopting ERP systems

Reasons	Valid Percentage	
	Frequency	Percentage
Integration of application	39	88.60%
Stock Exchange Requirement	34	77.30%
Business process re-engineering	30	68.20%
Cost Reduction	28	63.60%
Increase Sales	21	47.70%
Competition	05	11.40%
Internet development	05	11.40%
Integration of information system	04	9.10%
Foreign Currency Transaction	04	9.10%
Increased demand for real time information	03	6.80%
Information generation for decision making	01	2.30%
Application of new business Plan	01	2.30%
Taxation Requirement	01	2.30%

5.3 Average cost of ERP systems

To find which ERP system has the highest cost, average cost for the systems were found which is shown in the following table.

Figure 8: Average cost of ERP systems

ERP System	Cost (Rs.million)
SAP	44.2
Sage	2
IFS	44
Other	8.7

Form our findings the most expensive ERP system is SAP which has an average cost around Rs.44.2 million (Refer Appendix 1 in page). The second most expensive system is IFS which has a value closer to SAP; Rs.44 million (Refer Appendix 2 in page). The next is other ERP systems such as Lotus, Marksys, and Accpack which has a cost around Rs.8.7 million (Refer Appendix 3 in page). The least expensive ERP system is Sage which the average cost is around Rs.2 million (Refer Appendix 4 in page).

5.4 Correlation Analysis

To conclude whether cost incurred on a particular system has a significant influence over the factors identified (Time_Effieciency, Quality, Cost_Effectiveness, Flexibility and Integration) data were analyzed using correlation.

When analyzing variables in SAP a significant relationship can be seen between the costs they have invested for the software and the flexibility of business activities.

Figure 9: Correlation of SAP

	Measures	1	2	3	4	5	6
1	Time_Effieciency	-					
2	Quality	.743**	-				
3	Cost_Effectiveness	-0.279	-.679*	-			
4	Flexibility	.595*	0.229	0.077	-		
5	Integration	.611*	0.455	-0.047	0.362	-	
6	Cost	0.321	0.15	0.164	.596*	0.55	-

When considering the cost of the Sage package, significant relationship can be seen for two variables; time efficiency and integration.

Figure 10: Correlation of Sage

	Measures	1	2	3	4	5	6
1	Time_Effieciency	-					
2	Quality	0.823	-				
3	Cost_Effectiveness	0.813	0.404	-			
4	Flexibility	0.812	.966**	0.374	-		
5	Integration	.931*	0.606	0.875	0.562	-	
6	Cost	.954*	0.735	0.715	0.763	.923*	-

The cost of IFS has a significant relationship with time efficiency variable of the company.

Figure 11: Correlation of IFS

	Measures	1	2	3	4	5	6
1	Time_Effieciency	-					
2	Quality	0.548	-				
3	Cost_Effectiveness	0.54	0.663	-			
4	Flexibility	0.799	0.358	0.213	-		
5	Integration	-0.05	0.533	0.314	0.103	-	
6	Cost	.967**	0.432	0.443	0.714	-0.291	-

The cost of other packages like Lotus, Marksys shows a significant relationship with the cost effectiveness.

Figure 12: Correlation of other systems

	Measures	1	2	3	4	5	6
1	Time_Effieciency	-					
2	Quality	0.443	-				
3	Cost_Effectiveness	0.264	0.27	-			
4	Flexibility	.503*	0.347	.556*	-		
5	Integration	.504*	0.282	-0.05	0.383	-	
6	Cost	-0.194	-0.371	-.546*	-0.365	0.023	-

Findings implied that cost of the Sage package has a significant relationship with two factors where the cost of all other packages has significant relationship with only one factor.

5.5 Changes in accounting methods and practice after the implementation of ERP systems

The evidence identified earlier regarding the operation of accounting modules and the underlying reasons for adopting ERP systems leads us to expect prominent changes in the accounting practice after adopting ERP (post ERP period). Rather surprisingly though, the only prominent changes in accounting methods and practices resulting from adoption of the ERP systems relate to the increased use of "profit centers", "profitability analyses by business, customer and product", "target costing" and "internal audit". Clearly, these changes evolve from the integration of applications, the production of real-time information and particularly information for decision making. Therefore, considering the motives for adopting ERP systems, the outcome of their application appears to be successful in achieving its purpose.

Additional information on the changes brought in the accounting practices after ERP implementation is summarized in figure 13. As shown in figure 13, the adoption of ERP systems has enabled a number of manufacturing companies to introduce financial ratio analysis, the production of budgets (including cash budgets), profit centers, absorption costing and profitability analysis per customer. These changes also curtail from the availability of real-time data and the integration of applications. A small, but an important proportion of ERP adopters have introduced a number of more "sophisticated" accounting techniques in their accounting processes including "target costing" and activity based costing (ABC).
Due to the fact that ERP users have been using some of these practices before and the introduction of ERP systems has not been seen as a means for introducing new practices. In conclusion, the adoption of ERP systems appears to have fulfilled its purpose as demonstrated in the changes in the accounting practices.

Figure 13: Accounting methods and practices used after the application of ERP systems

	Number	**Percentage (%)**
Profit Centers	26	59
Profitability analysis per business activity / Segment	25	57
Profitability analysis per customers	25	57
Profitability analysis per product	23	52
Target Costing	17	39
Cost centers	16	36
Internal Audit	16	36
Absorption costing	15	34
Production of cash budget	13	30
Financial ration analysis	13	30
Production of master budget	5	11
Non-Financial performance indicators	3	7
Activity based Costing(ABC)	2	5
Marginal Costing	1	2

Further we analyzed accounting methods and practices used after ERP adoption based on the ERP categories. SAP which is used 13 manufacturing companies out of sample, is being mainly using for following areas; cost centers, profit centers, Profitability analysis per business activity/customer and internal audit. Table below shows respective percentages of accounting practices after adopting SAP.

Figure 14: Notable changes in accounting practices after adopting **SAP**

Accounting practice	**Percentage (%)**
Profit Centers	92.3
Profitability analysis per business activity / Segment	84.6
Cost centers	76.9
Profitability analysis per customers	76.9
Internal Audit	76.9
Absorption costing	76.9

Internally developed other ERP packages like Lotus, Marksys & Accpack are being mainly using for following accounting practices. In our sample this represents the majority of respondents (45%).

Figure 15: Notable changes in accounting practices after adopting **other ERP** systems

Accounting practice	**Percentage (%)**
Profitability analysis per product	65
Profitability analysis per customers	55
Profitability analysis per business activity / Segment	50
Target Costing	45
Production of capital expenditure budget	45

Compared to the SAP, other ERP packages have lesser usage in profit centers, cost centers and internal audit. Mostly used in profitability analysis per product/customer/segment, target costing and production of capital expenditure budget.

Sage and IFS packages are also highly used in target costing, profit centers & profitability analysis per segment. According to these findings it is clear that irrespective of the category of ERP system, profit centers, cost center, internal audit, profitability analysis per product/customer/segment and target costing are the significant changes in accounting practice of manufacturing companies after implementing ERP system.

So far, this paper has discussed the motives for adopting ERP systems and the changes brought in the accounting practices. Latter part will discuss, what is the "real" impact of ERP systems on companies adopting them? That is, to what extent have ERP systems fulfilled their purpose? Each our sample companies were asked to rate the actual benefits achieved via the introduction of ERP systems on a seven-point likert type scale.

5.6 Benefits obtained after implementing ERP systems

The most highly rated perceived benefits achieved via ERP systems relate to "increased quality", "increased integration" and "improved flexibility". These findings further reinforce regarding ERP systems' success in achieving their purpose.

Increased quality comprises with improved quality of reports (Statements of accounts), improved decision making process, improved internal audit function and improved decision based on timely and reliable information. Increased integration comprises with increased integration of accounting application and integration of accounting department with other functional department production/marketing. Increased flexibility in generation report, increased flexibility in getting information and increased used of financial ratio analysis are included in flexibility variable.
The highest rating has been arrived for improved quality of reports (Statements of accounts) and lowest rating has been arrived for reduction of time for issuing payroll with regard to overall ERP systems in manufacturing companies.

Figure 16: Frequency analysis for benefits obtained after implementing ERP system is summarized below.

Variables	**Sub variables**	**Mean**	**Std. Deviation**	**Median**	**Mode**
Quality	Improved quality of reports – Statements of accounts	5.29	0.815	5	6
	Improved decision making process	5.05	0.861	5	5
	Improved Internal audit function	5.09	0.733	5	5
	Improved working capital control	5.16	0.878	5	5
	Improved decision based on timely and reliable information	4.82	0.86	5	5
Flexibility	Increased used of financial ration analysis	4.89	0.885	5	5
	Increased flexibility in generation report	5.19	0.89	5	5
	Increased flexibility in getting information	5.18	0.87	5	5

Integration	Increased integration of accounting application	5.18	0.756	5	5
	Integration of accounting department with other functional department (Production/Marketing)	4.89	0.832	5	5
Cost effectiveness	Reduction of personal of accounting department	4.73	0.817	5	4[a]
	Reduction of Paper works	4.93	0.768	5	5
Time efficiency	Reduction of time for closure of monthly accounts	5.02	0.866	5	5
	Reduction of time for closure of quarterly accounts	5.07	1.021	5	5
	Reduction of time for closure of annual accounts	5.07	0.72	5	5
	Reduction of time for transaction processing	5.3	0.803	5	5
	Reduction of time for issuing of reports – Statements of accounts	5.18	0.684	5	5
	Reduction of time for issuing payroll	1.63	1.398	1	1

[a] Multiple modes exist. The smallest value is shown.

Notes: 1 = not at all; 2 = very low degree; 3 = low degree; 4 = average; 5 = high degree; 6 = very high degree; 7 = perfect

When analyzing benefits after implementing ERP based on the each ERP packages the companies use, we identified SAP has been rated highest for increased flexibility in generation reports and lowest for reduction of time for issuing payroll. Further it shows higher ranking on reduction of time for closure of annual accounts, reduction of time for transaction processing and improved internal audit function. (Refer appendix 4 in page)

Improved quality of reports (Statements of accounts) and increased flexibility in getting information have been received higher rating by SAGE users and reduction of time for issuing payroll has been received quite lower ranking. (Refer appendix 5 in page)

According to our study second most expensive package, IFS has arrived higher ranking for most of the variables; increased flexibility in generation report, improved quality of reports (Statements of accounts), increased flexibility in getting information, increased integration of accounting application, reduction of personal of accounting department, improved working capital control, improved decision making process and reduction of time for closure of monthly

accounts. Same as the other packages this has been also given lower ranking on reduction of time for issuing payroll (Refer appendix 6). Other ERP packages have also been highly ranked on reduction of time for transaction processing and lower ranking was given on reduction of time for issuing payroll (Refer appendix 7).

When we total the mean value of ERP systems separately it can be summarized as follows.

ERP system	Total of mean values of benefits	Benefits as a% of cost
SAP	85.01	85.01/44.2 = **192%**
SAGE	64.4	64.4/2 = **3220%**
IFS	90.3	90.3/44 = **205%**
Other ERP	89.35	89.35/8.7 = **1027%**

5.6.1 Assessing the most beneficial ERP system

In assessing the most beneficial ERP system which is one of the sub objectives of reserchers, total benefits yield over the cost incurred was compared. IFS has the highest perceived benefits compared to rest of the ERP systems when considering the absolute value of total benefits. But IFS is the second most expensive ERP system as per our findings which the cost is slightly less than SAP. When benefits are compared with the cost of the particular system SAGE has 3220% benefits over the cost. So the most beneficial system comes to be SAGE when compared with the cost. This is more evidenced when analyzing the correlation under section 5.4, figure 10 which shows the correlation of SAGE. The cost of SAGE has a significant relationship for two variables; time efficiency and integration where cost of all the other ERP systems has a significant relationship with only one variable.

5.7 Regression Analysis

- ***Time efficiency and the Cost***

Model is significant. Sig value of the regression row of anova table is .013 (refer appendix 8 in page) and less than 0.05. So the model can be used.

Figure 17: Model summary for time efficiency and cost

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.349[a]	.122	.104	1.46967

a. Predictors: (Constant), cost

R value represents the simple correlation and it is .349 which indicates a positive week correlation. R square value is .122, therefore only 12.2% of the time efficiency can be explained by the cost; the independent variable.

And also we can predict time efficiency of ERP system from the cost. Time efficiency = 3.564+.020(Cost)(Refer appendix 9 in page)Both intercept and slope of cost are significant.

- ***Quality and the Cost***

Model is insignificant. Sig value of the regression row of anova table is .124 (Refer appendix 10 in page) and higher than 0.05. So the model cannot be used.

Figure 18: Model summary for quality and cost

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.223[a]	.050	.029	1.71090

a. Predictors: (Constant), Cost

- ***Cost effectiveness and the cost***

Model is significant. Sig value of the regression row of anova table is .022 (Refer appendix 11 in page) and less than 0.05. So the model can be used.

Figure 19: Model summary for cost effectiveness and cost

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.327[a]	.107	.088	1.72045

a. Predictors: (Constant), Cost

R value represents the simple correlation and it is .327 which indicates a positive week correlation. R square value is .107, therefore only 10.7% of the cost effectiveness can be explained by the cost; the independent variable

Not only that, we can predict time efficiency of ERP system from the cost. Cost Effectiveness = 3.7+.022(Cost)(refer appendix 12 in page)Both intercept and slope of cost are significant.

- ***Flexibility with Cost***

Model is significant. Sig value of the regression row of anova table is .013(Refer appendix 13 in page) and less than 0.05. So the model can be used.

Figure 20: Model summary for flexibility and cost

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.352[a]	.124	.105	1.66537

a. Predictors: (Constant), Cost

R value represents the simple correlation and it is .352 which indicates a positive week correlation. R square value is .1124, therefore only 12.4% of the flexibility can be explained by the cost; the independent variable

And we can predict time efficiency of ERP system from the cost. Cost Effectiveness = 3.869+.023(Cost)(Refer appendix 14 in page)Both intercept and slope of cost are significant.

- ***Integration with Cost***

Model is significant. Sig value of the regression row of anova table is .084 (Refer appendix 15 in page) and higher than 0.05. So the model cannot be used.

Figure 21: Model summary for integration and cost

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.249[a]	.062	.042	1.71393

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.249[a]	.062	.042	1.71393

a. Predictors: (Constant), Cost

5.8 LIMITATIONS OF THE STUDY

In carrying out this study, researchers faced few problems due to the limitations in the study. Approaching the top management was difficult, when collecting responses, so the some management was the respondents on behalf of their companies. It would have been more advantageous if we were able to collect the responses from the top management.

6. SUMMARY AND CONCLUSION

With the implications of developing Information Technology, same as all other entities, the environment in which business organizations are operating too is severely subjecting to influences of IT. Since today business organizations are operating in a highly competitive business environment it is very essential for them to be up to date, to share business information with other business organizations in the same industry, may be locally as well as globally. At the same time, business organizations need the expansion of business activities in order to survive and sustain in the competitive business environment. So it is very much important to be linked and integrated with the business functions in the organization itself and with other business organizations too.

Consequently, all the business functions have now been incorporated with IT. ERP systems are such a tool which facilitates the incorporation of all the business functions. Level of application of IT will be different from context to context, from country to country. In Sri Lanka, researchers could observe that Information systems have been widely used in accounting and finance business function. Main function of accounting and finance as a core business function is to provide accurate and timely information for the decision makers.

In collecting research data, even though we selected a sample of 80 Manufacturing companies to represent our population we could only get 51 responses, researchers found that only 44 out of that 51 is using ERP systems. Therefore the researchers arrived at following basic conclusions based on the sample of 44 responses received.

- Amongst the ERP system software used by the sample companies, SAP is used by 29.5%. IFS has only a usage of 6%.
- It was found that “Integration of business application” is the main reason for most of the companies in the sample to adopt ERP systems while “taxation requirements what the researchers gave as a reason is the least used basis in adopting ERP systems.
- ERP system with a highest cost is SAP. IFS too have a higher cost but its mean is less than of SAP.

When each ERP system software is assessed based on their quality, flexibility, integration, cost effectiveness and time efficiency;

- SAP: Most of the SAP users have experienced the increase in flexibility of business activities over its cost.

- Sage: Most of the Sage software users have experienced the increase in both the time efficiency and the integration of business activities against the cost.
- IFS: Most of the IFS users have experienced the increased time efficiency against the cost of ERP systems.
- Both SAP and IFS software using companies have experienced the increased time efficiency.

When considering the changes in the accounting practice after adopting ERP systems, the only prominent changes after adopting ERP systems is the increased use of "profit centers", "profitability analysis" , "target costing" and "internal audit". The main reason for adopting ERPs was the integration of business applications, and this reason implies the purpose of adoption. So the purpose appears to be successful when the achieved output is considered.

SAP which is the highly used ERP software, is using mainly in the areas of cost centers, profit centers, profitability analysis per business activities and internal audit.

In concluding to what extent ERP systems have fulfilled their purpose, respondents were given 7 benefits and researches expected them to rate those according to the actual benefit the companies received. Accordingly the highly rated perceived benefits achieved via ERP systems relate to "increased quality", "increased integration" and "improved flexibility". These findings further reinforce regarding ERP systems' success in achieving their purpose.

SAP has been rated at highest for increased flexibility. Sage has received high ratings for increased flexibility and improved quality. And also SAGE has highest benefits over the cost incurred.

Being the core objective of the research, researchers are to assess the benefits of ERP systems based on five variables; time efficiency, quality, cost effectiveness, flexibility and integration against their cost. Thereby the researchers arrived at following conclusions based on the results of correlation and regression tests.

- Time efficiency has a positive correlation with the cost; where when the cost of an ERP system increases, time efficiency also tend to increase. (Hypothesis 5 has been satisfied)
- Cost effectiveness has a positive correlation with the cost; where when the cost of an ERP system increases, its cost effectiveness also tend to increase. (Hypothesis 3 has been satisfied)

- Flexibility has a positive correlation with the cost; where when the cost of an ERP system increases, its flexibility towards the business activities also tend to increase. (Hypothesis 2 has been satisfied)
- Correlation of cost with quality and integration of business activities weren't able to assess since the regression models for those two weren't significant.
- All these variables had only a week positive correlation with cost where it can be concluded that increase or decrease in ERP software cost is slightly or a little more than that is affecting on increase in these benefits.

Appendix

Appendix 1: Average cost of SAP

N	Valid	13
	Missing	0
Mean		44.1977

Appendix 2: Average cost of Sage

N	Valid	5
	Missing	0
Mean		2.0800

Appendix 3: Average cost of IFS

N	Valid	6
	Missing	0
Mean		44.0000

Appendix 3: Average cost of Other

N	Valid	11
	Missing	0
Mean		8.6636

Appendix 4: Perceived benefit after implementation of SAP

Variable	**Sub variable**	**Mean**	**Std. Deviation**	**Median**	**Mode**
Quality	Improved quality of reports – Statements of accounts	4.77	0.725	5	5

	Improved decision making process	4.62	0.768	4	4
	Improved Internal audit function	5.08	0.494	5	5
	Improved working capital control	4.77	0.725	5	5
	Improved decision based on timely and reliable information	4.85	0.801	5	4
Flexibility	Increased used of financial ration analysis	4.77	0.725	5	5
	Increased flexibility in generation report	5.31	0.63	5	5
	Increased flexibility in getting information	4.69	0.63	5	5
Integration	Increased integration of accounting application	4.69	0.63	5	5
	Integration of accounting department with other functional department (Production/Marketing)	4.69	0.751	5	5
Cost effectiveness	Reduction of personal of accounting department	4.69	0.63	5	5
	Reduction of Paper works	5	0.707	5	5
Time efficiency	Reduction of time for closure of monthly accounts	4.85	0.801	5	5
	Reduction of time for closure of quarterly accounts	5	1.08	5	5
	Reduction of time for closure of annual accounts	5.08	0.641	5	5
	Reduction of time for transaction processing	5.08	0.862	5	6
	Reduction of time for issuing of reports – Statements of accounts	4.92	0.494	5	5
	Reduction of time for issuing payroll	2.15	1.819	1	1
Total		**85.01**			

[a] Multiple modes exist. The smallest value is shown.

Appendix 5: Perceived benefit after implementation of SAGE

Variable	**Sub variable**	**Mean**	**Std. Deviation**	**Median**	**Mode**
Quality	Improved quality of reports – Statements of accounts	5.6	0.894	6	6
	Improved decision making process	5.4	0.548	5	5

	Improved Internal audit function	4.8	1.095	5	5
	Improved working capital control	4.6	0.548	5	5
	Improved decision based on timely and reliable information	4.6	0.894	5	5
Flexibility	Increased used of financial ration analysis	4.8	0.447	5	5
	Increased flexibility in generation report	4.6	0.548	5	5
	Increased flexibility in getting information	5.6	0.548	6	6
Integration	Increased integration of accounting application	5.2	0.447	5	5
	Integration of accounting department with other functional department (Production/Marketing)	4.4	0.894	4	4
Cost effectiveness	Reduction of personal of accounting department	4.2	0.447	4	4
	Reduction of Paper works	5	0	5	5
Time efficiency	Reduction of time for closure of monthly accounts	4.6	0.548	5	5
	Reduction of time for closure of quarterly accounts	4.8	1.483	5	5
	Reduction of time for closure of annual accounts	4.2	0.447	4	4
	Reduction of time for transaction processing	5	0	5	5
	Reduction of time for issuing of reports – Statements of accounts	4.6	0.548	5	5
	Reduction of time for issuing payroll	1	0	1	1
Total		**64.4**			

[a] Multiple modes exist. The smallest value is shown.

Appendix 6: Perceived benefit after implementation of IFS

Variable	**Sub variable**	**Mean**	**Std. Deviation**	**Median**	**Mode**
Quality	Improved quality of reports – Statements of accounts	5.5	0.837	6	6
	Improved decision making process	5.3	0.516	5	5
	Improved Internal audit function	5.0	0.894	5	4
	Improved working capital control	5.5	0.837	6	6

	Improved decision based on timely and reliable information	4.5	0.837	4	4
Flexibility	Increased used of financial ration analysis	4.7	1.211	4	4
	Increased flexibility in generation report	5.7	1.211	6	5
	Increased flexibility in getting information	5.5	0.548	6	5
Integration	Increased integration of accounting application	5.5	0.837	6	6
	Integration of accounting department with other functional department (Production/Marketing)	5.0	1.095	5	5
Cost effectiveness	Reduction of personal of accounting department	5.5	1.225	6	6
	Reduction of Paper works	5.0	0.632	5	5
Time efficiency	Reduction of time for closure of monthly accounts	5.2	1.472	5	4
	Reduction of time for closure of quarterly accounts	4.8	1.329	4	4
	Reduction of time for closure of annual accounts	5.3	1.033	5	5
	Reduction of time for transaction processing	5.2	0.753	5	5
	Reduction of time for issuing of reports – Statements of accounts	5.3	0.816	6	6
	Reduction of time for issuing payroll	1.8	1.329	1	1
Total		**90.3**			

Appendix 7: Perceived benefit after implementation of other ERP systems

Variable	Sub variable	Mean	Std. Deviation	Median	Mode
Quality	Improved quality of reports – Statements of accounts	5.5	0.761	6	6
	Improved decision making process	5.11	0.994	5	5
	Improved Internal audit function	5.2	0.768	5	5
	Improved working capital control	5.35	0.875	5	6
	Improved decision based on timely and reliable information	4.95	0.945	5	5
Flexibility	Increased used of financial ration analysis	5.05	0.999	5	5
	Increased flexibility in generation report	5.11	0.963	5	5
	Increased flexibility in getting information	5.26	1.046	5	5
Integration	Increased integration of accounting application	5.37	0.761	6	6
	Integration of accounting department with other functional department (Production/Marketing)	5.05	0.759	5	5
Cost effectiveness	Reduction of personal of accounting department	4.63	0.761	5	5
	Reduction of Paper works	4.84	0.958	5	4
Time efficiency	Reduction of time for closure of monthly accounts	5.2	0.768	5	5
	Reduction of time for closure of quarterly accounts	5.21	0.787	5	5
	Reduction of time for closure of annual accounts	5.1	0.447	5	5
	Reduction of time for transaction processing	5.58	0.838	5	5
	Reduction of time for issuing of reports – Statements of accounts	5.45	0.686	5	5
	Reduction of time for issuing payroll	1.39	1.243	1	1
Total		**89.35**			

Appendix 8: Anova for time efficiency and cost

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	14.390	1	14.390	6.662	.013[a]
	Residual	103.677	48	2.160		
	Total	118.068	49			

a. Predictors: (Constant), cost

b. Dependent Variable: Time_Effie

Appendix 9: Coefficient for time efficiency and cost

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.564	.255		13.962	.000
	Cost	.020	.008	.349	2.581	.013

a. Dependent Variable: Time_Effie

Appendix 10: Anova for quality and cost

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.185	1	7.185	2.455	.124[a]
	Residual	137.577	47	2.927		

	Total	144.762	48			

a. Predictors: (Constant), Cost

b. Dependent Variable: Quality

Appendix 11: Anova for cost effectiveness and cost

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	16.648	1	16.648	5.624	.022[a]
	Residual	139.118	47	2.960		
	Total	155.765	48			

a. Predictors: (Constant), Cost

b. Dependent Variable: Cost_Effectiveness

Appendix 12: Coefficient for cost effectiveness and cost

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients
		B	Std. Error	Beta
1	(Constant)	3.700	.303	
	Cost	.022	.009	.327

a. Dependent Variable: Cost_Effectiveness

Appendix 13: Anova for flexibility and cost

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	18.408	1	18.408	6.637	.013[a]
	Residual	130.353	47	2.773		
	Total	148.762	48			

a. Predictors: (Constant), Cost

b. Dependent Variable: Flexibility

Appendix 14: Coefficient for flexibility and cost

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.869	.294		13.170	.000
	Cost	.023	.009	.352	2.576	.013

a. Dependent Variable: Flexibility

Appendix 15: Anova for integration and cost

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	9.129	1	9.129	3.108	.084[a]

	Residual	138.065	47	2.938		
	Total	147.194	48			

a. Predictors: (Constant), Cost

b. Dependent Variable: Integration

Appendix 16: Questionnaire

Questionnaire Form

Do your companies use any ERP System?

1. Yes ☐
2. No ☐

If your answer is yes fill Section "A" and If not move to Section "B"

Section A

Please fill in or ticks

1. For how long has the ERP been implemented in your enterprise?
   _____

2. What ERP system is using by your company?
   1. SAP ☐
   2. SAGE ☐
   3. IFS ☐
   4. OTHER _____

3. Which of the following module do you operate in an ERP environment?
   1. Financial Accounting ☐
   2. Fixed Asset Register ☐
   3. Management Accounting ☐
   4. Costing ☐
   5. Production ☐
   6. Logistics ☐
   7. E-Commerce ☐
   8. Stock Purchases ☐
   9. Payroll ☐
   10. Quality Management ☐
   11. Other ☐

4. Which of the following reason let to the decision to adopt the ERP System? ☐
   1. Integration of application ☐
   2. Taxation Requirement ☐
   3. Foreign Currency Transaction ☐
   4. Internet development ☐
   5. Business process re-engineering ☐
   6. Competition ☐
   7. Year 2000 problem ☐
   8. Integration of information system ☐
   9. Cost Reduction ☐
   10. Increased demand for real time information ☐
   11. Stock Exchange Requirement ☐
   12. Increase Sales ☐
   13. Information generation for decision making ☐
   14. Application of new business Plan ☐
   15. Government funding Subsidization ☐
   16. Development of activities on to new areas with business contracts
   17. Other _____

Which of the following accounting method and practices did you use after the application of the ERP System? (Please check)

1. Absorption costing ☐
2. Target Costing ☐
3. Marginal Costing ☐
4. Activity based Costing(ABC) ☐
5. Cost centers ☐
6. Profit Centers ☐
7. Profitability analysis per product ☐
8. Profitability analysis per business activity / Segment ☐
9. Profitability analysis per customers ☐
10. Production of master budget ☐
11. Production of cash budget ☐
12. Production of capital expenditure budget ☐
13. Financial ration analysis ☐
14. Non-Financial performance indicators ☐
15. Internal Audit ☐
16. Other _____

In your opinion, to what extent has the introduction of the ERP has helped your company to achieve the following? (Please Fill in)

(1= Not at all, 2=Very low degree, 3= Low degree, 4= Average, 5=High degree, 6= very high degree, 7= Perfect)

	1	2	3	4	5	6	7
1. Reduction of time for closure of monthly accounts	☐	☐	☐	☐	☐	☐	☐
2. Reduction of time for closure of quarterly accounts	☐	☐	☐	☐	☐	☐	☐
3. Reduction of time for closure of annual accounts	☐	☐	☐	☐	☐	☐	☐
4. Reduction of time for transaction processing	☐	☐	☐	☐	☐	☐	☐
5. Reduction of time for issuing of reports – Statements of accounts	☐	☐	☐	☐	☐	☐	☐
6. Improved quality of reports – Statements of accounts	☐	☐	☐	☐	☐	☐	☐
7. Improved decision making process	☐	☐	☐	☐	☐	☐	☐
8. Improved Internal audit function	☐	☐	☐	☐	☐	☐	☐
9. Improved working capital control	☐	☐	☐	☐	☐	☐	☐
10. Increased used of financial ration analysis	☐	☐	☐	☐	☐	☐	☐
11. Reduction of time for issuing payroll	☐	☐	☐	☐	☐	☐	☐
12. Reduction of personal of accounting department	☐	☐	☐	☐	☐	☐	☐
13. Increased flexibility in generation report	☐	☐	☐	☐	☐	☐	☐
14. Increased flexibility in getting information	☐	☐	☐	☐	☐	☐	☐
15. Increased integration of accounting application	☐	☐	☐	☐	☐	☐	☐
16. Improved decision based on timely and reliable information	☐	☐	☐	☐	☐	☐	☐
17. Reduction of Paper works	☐	☐	☐	☐	☐	☐	☐
18. Integration of accounting department with other functional department (Production/Marketing)	☐	☐	☐	☐	☐	☐	☐

What is the Cost your company incurred on installing ERP System? (State Approximately)

Rs. ☐

Section B

If yours answer is No, Why you have not implement ERP system in your organization?

1. Costly ☐
2. Lack of expertise staff ☐
3. High complexity ☐
4. Other _____

Section C

Company and Personnel Information

1. Your company is
2. Independent ☐
    1. Parent ☐
    2. Subsidiary ☐
    3. Associate ☐
    4. Franchise ☐
    5. Other ☐
3. Your position in the firm _____
4. Years at Current Post _____
5. Total work experience _____ (Years)
6. Age _____ (Years)
7. Gender _____

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