

END-USER ACCEPTANCE OF ERP SYSTEMS IN APPAREL MANUFACTURING ORGANIZATIONS IN SRI LANKA

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Abstract

Enterprise Resource Planning Systems (ERPs) have become much more essential today in the corporate world which resulted in substantial investments in information systems and technology. Therefore business entities tend to establish ERP systems in order to gain economies of scales and to compete with business rivals. The situation applies similarly in Sri Lankan context-especially in the manufacturing sector. However, the question of whether these companies have achieved their purpose through ERPs implementation remains. Past researches showed that effectiveness of ERP systems heavily depends on users' acceptance of the ERP system. Our aim of this study is to examine the factors affecting the level of end-user acceptance of ERPs in apparel manufacturing organizations in Sri Lanka. The survey was conducted with the participation of ERP users in two apparel giants (MAS and Hirdaramani Group) in Sri Lanka. This study mainly used quantitative method to identify factors affecting end-user acceptance of ERPs. The study was done by using the Unified Theory of Acceptance and Use of Technology (UTAUT) as the basis. The factors such as Performance expectancy (PE), Effort Expectancy (EE), Social Influence (SI), Training (TRN) and Shared Belief (SB) were examined. A questionnaire was used as the primary source of data. Further, qualitative interviews were conducted and SPSS software was used to analyze statistical data. It was found that the level of acceptance of ERP systems is in a moderate level and the attributes: PE, EE, TRN and SB were correlated with Symbolic Adoption of ERP systems.

Key Words: ERP, end-user acceptance, Performance expectancy (PE), Effort Expectancy shared Belief (SB), Unified Theory of Acceptance

1. Introduction

There were notable and rapid transformations in the business environment over the past two decades. Among them would be globalization, expansion and growth of private sector, intense competition and etc. In order to respond to these challenges and opportunities organizations have to come up with various creative ways of building competencies and accumulating knowledge which would give them a competitive advantage over their rivals. This helps them survive and prosper in their respective industry/sector. In this context, Information Technology (IT) plays a vital role providing the competencies, knowledge, flexibility and adaptability required for survival and growth of the organizations. IT has become a vital component.

Enterprise resource planning (ERP) is undoubtedly one of the major innovations in IT products in the past decade (Beatty and Williams, 2006). The use of information technology in the form of software which is capable of simplifying, organizing and coordinating business processes and ensuring a smooth and an efficient flow of data throughout could simply be called as an Enterprise Resource Planning (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 et al., 2010). ERP systems are widely and extensively used in the present day due to their many advantages in the area of productivity improvement throughout the organization.

However, to reap the desired benefits, they must be properly implemented. For this they must be accepted by the end-users and customized as well as changed in order to fit into the organizations' business processes. Moreover, the ERP system is a complex system which impacts large numbers of end-users in the organizations. A proper implementation plan is necessary as well as change management plan (Motiwalla & Thompson, 2009). With the ubiquitous growth of IS investment, ERP systems implementation grows strongly. More and more companies introduce ERP systems. They perceive that ERP systems can provide a high level of competitiveness via the acquiring of a strong market position (Robey, Ross & Boudreau, 2002).

The ERP implementation of any organization follows three main steps- selection, implementation, operations and post implementation. In the context of end-user acceptance, most of the studies have focused on the different factors leading to the selection of an ERP system, vendor selection, identifying critical successful factors (CSFs) affecting ERP selection and implementation (Yu, 2005). These CSFs include top management support, communication, training, cooperation, technological complexity. Most of these studies have emphasized on the selection and implementation stages of the ERP systems.

This study focused on the factors affecting end-user acceptance of the ERP systems adopted by manufacturing companies in Sri Lanka emphasizing on the post-implementation stage of the life cycle of an ERP system. ERP systems might be implemented successfully from a technical perspective, but success depends on ERP users' attitudes toward and actual use of the system (Boudreau, 2002; Kwahk & Lee, 2008). This study comprehensively studied the level of user acceptance, factors affecting user acceptance and the attitudes and behaviour of the users with respect to the ERP systems.

The research problem, hypotheses and objectives emphasized further followed by an extensive literature survey providing facts already known to us in this context. This also encompassed descriptions on the significance of the study, research methodology used and the limitations of the study.

Research Questions & Research Objectives

Overview

Due to the growing competition and the advancements in IT, the choice on ERP implementation has become a crucial one. In order to keep up with the changing business world, it was necessary for the companies to build capabilities which provided them with a competitive edge. In keeping up with the global economy and way of doing business, there is a growing trend in the adoption of such systems by business organizations in Sri Lanka. However, most of the organizations adopting ERP systems end up failing to reap the desired benefits due to the lack of user acceptance of the system. This showed that end-user acceptance of ERP systems was a critical factor affecting not only for the success of ERP implementations but also for taking ERP adoption decisions.

Although ERP system adoption is ever increasing in Sri Lanka, there is much less written evidence on ERP systems, user acceptance and the factors contributing to the user acceptance. In this study we aim to focus on the apparel industry giants- MAS and

Hirdaramani group of companies. In this study we aim to obtain answers to the following questions.

Research Questions

Through our research we seek answers for the following questions.

1. What is the role played by the ERP system in the particular company?
2. What are the major factors affecting to end-user acceptance of ERP systems in apparel industry in Sri Lanka?
3. How do they relate to ERP system acceptance?

Significance of the study

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. However, every organization adopting ERP systems would not make the maximum use of all the features made available by the system resulting in failures. This could be due to many reasons- one major reason being lack of end user acceptance of the ERP system. Approximately 50% of all ERP implementations fail to meet the adopting organizations' expectations (Jasperson, Carter and Zmud, 2005).

This study seeks to identify the factors affecting the end user acceptance of ERP systems. This will contribute mainly to understand the level of success an organization would achieve with regard to ERP implementation. This study mainly focuses on the post-implementation stage- which is a crucial yet undermined stage in both local and foreign ERP environments. This study will identify the extent to which factors such as performance expectancy, effort expectancy, social influence and facilitating factors would contribute to the level of end user acceptance of ERP systems in apparel manufacturing organizations in Sri Lanka.

Although similar researches have been conducted in this area, no research work was found in the context of apparel manufacturing industry in Sri Lanka. The findings of this study would contribute mainly to improve the post-implementation activities related to ERP systems. Organizations would be able to pay attention to the subtle factors in the social and organizational setting of the end users and also personal attitudes towards the use of ERP system, functionality and etc. in designing training programs, change management procedures, managing the user expectations, behaviours, user involvement and etc. Therefore, this study will provide insights to the management which will be highly useful in ensuring successful implementation of the ERP systems.

2. Literature Review

Information Technology has brought about many changes in the corporate world over the years. Technology is clearly dynamic in nature and keeps on adding to organizational knowledge and competencies. Enterprise Resource Planning Systems (ERPs) have come into existence in the 90's. But the use of ERP systems was not as extensive or popular as it is at present. Therefore, the research on ERP systems alone is limited. Further, research on ERP systems, their application and critical success factors of implementation associated with user acceptance is even more limited. However, there are some notable research works on the ERP implementation and user acceptance. A number of researches have been conducted in the development of user acceptance models such as Technology Acceptance Model (TAM) and etc. for ERP systems.

ERP System

ERP systems evolved from advanced manufacturing technologies (AMT) aimed at increasing quality, lowering inventory levels, improving customer service and manufacturing flexibility (Drury, 1996; Huang and Palvia, 2001; Palaniswamy and Frank, 2000; Siriginidi, 2000b; Slack, 1991). On the research of Marufhasan et al. 2011 defined an ERP as a system that can perform various functions and activities of an organization, optimally through the integration of departments and identification and implementation of a set of optimum functions, procedures and tools. Wu and Wang, 2007 defined an ERP as a standard software package that enables activities and exchange in an integrated way and provides the access to information for internal and external members of the organization.

An ERP system encloses the whole organization and its functions. As Van Everdingen et al., (2000) explained the activities of ERP generally include financial operations and organizational accounting, human resources functions, supply chain management and customer service. In contrast to manufacturing resource planning systems (MRP) that existed in 1970s, ERP emphasize the use of single information and IT infrastructure to integrate all business processes and functions (Waartsa, Everdingen & Hillegersber, 2002). Kale (2000) revealed that the ERP system is a set of pre-planning software package that integrate production, marketing, human resources, research and development, financial and other modules, which can fulfil the requirements of the various functions within the enterprise.

This study also revealed that an ERP system is flexible that it can customize and re-set the module configuration according to the user's operating environment.

ERP system is a software system which can help integrate and coordinate the organization's information flow and operation flow, through real-time data collection and data storage in a single database to support different departments and operational functions in organizations. When an ERP system is fully used to its maximum potential, the organization could acquire major benefits such as decreased cycle time in operations, speedy information processing, strong financial management and discovery of hidden knowledge (Sue, Mark & Cynthia, 2003).

Research on ERP systems in Sri Lankan context is limited. However, ERP systems are not entirely new in Sri Lanka. Many organizations in Sri Lanka have adopted at least one module of an ERP system in order to centralize and streamline their organization's processes for better performance. However, a large number of ERP implementations failed to deliver expected results (Gunawardena and Wickramasinghe, 2007).

ERP Implementation Stages and Success Factors

Implementation of any ERP system demands a lot of effort, time and resources. Implementation is merely one step along the way of setting up a good ERP system. Prior research findings such as (Doom et al., 2010) suggest that, for the implementation to be successful several factors should be taken into consideration.

ERP implementation is a continuous task of implementing parts of modules and improving them. Three main phases of ERP implementation life-cycle could be identified: pre-implementation (pre-selection), implementation and post-implementation phase. In many cases, ERP implementations have failed during or after the implementation stage. Therefore, it could be said that the majority success of ERP implementation rests in post-implementation phase (Motiwalla & Thompson, 2009).

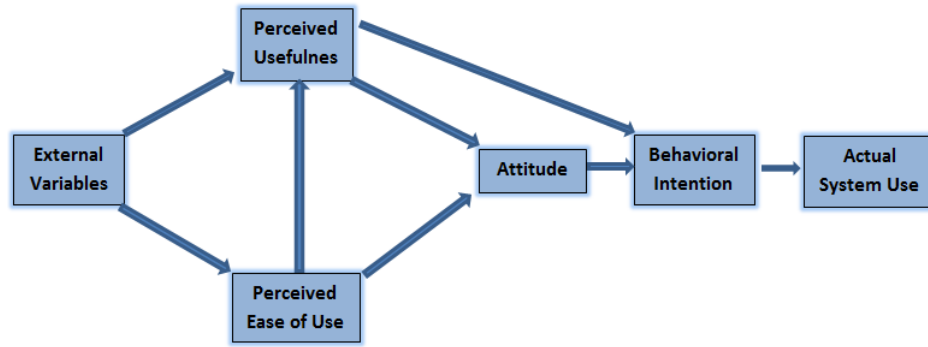
The pre-implementation stage is spent selecting vendors, evaluating the package purchased and so on. This is followed by project planning which is vital for implementation. For the implementation phase, companies will mainly perform activities such as training, re-engineering, and gap analysis and etc. Eventually, the company comes to post-implementation phase, which is very critical for the success of ERP implementation (Markus & Tanis, 2000). During the 'stabilization' stage, errors are fixed, end-users are retrained and system performance is balanced. This is the initial post implementation stage. This stage usually lasts for about five to ten months until the system helps the operations to come back

to normal. After the system improvement, the business processes and the ERP system will settle in line with experiences obtained (Ross & Vitale, 2000; Shanks, 2000). After the stabilization stage, the ERP implementation might be successful (only from a technical perspective), but success depends on ERP end-users' attitudes toward the system and actual use of the system (Boudreau, 2002; Kwahk & Lee, 2008). Only when employees are pleased and accepts the system through their direct system interaction can the full potential of the system be exploited (DeLo- 6 ne & McLean 1992; Bhattacharjee 2001; Au, Ngai et al. 2008).

End-user Acceptance of ERP

Some studies have revealed that the reason for failure of ERP systems after implementation is due to an inadequate use of the system (i.e. only using a few modules of the system) (Jasperson et al., 2005). However, a research conducted by Bo Cheng and Zili Zeng (2012) in large scale Chinese companies revealed that user acceptance of the system following implementation phase is the crucial factor for successful implementation. Their research further revealed that post-implementation technical support, better system functionality and social factors have a higher influence on end-user acceptance. Therefore, selection of the best ERP or the mere implementation of it would not assure that an organization would reap the benefits of that particular ERP system. The users of the system need to be satisfied with it in order to ensure their acceptance and desired results. One of the frequently stated reasons for ERP failures is end-users' unwillingness or reluctance to adopt or use newly implemented ERP system (Barker & Frolick, 2003). The issue of user acceptance of technology could be addressed comprehensively using the Technology Acceptance Model (TAM). TAM, illustrated below (Figure 1), was introduced by Davis (1989) which identifies the level of usage of an information system (Actual use), as a superior indicator of the level of acceptance of technology by end-users (Amaoko-Gyampah & Salam, 2004). TAM believes that the primary determinants of information technologies adoption in organizations are perceived usefulness and ease of use (Davis, 1989). TAM provides a foundation to find out the impact of external variables on internal values, attitudes, and intent.

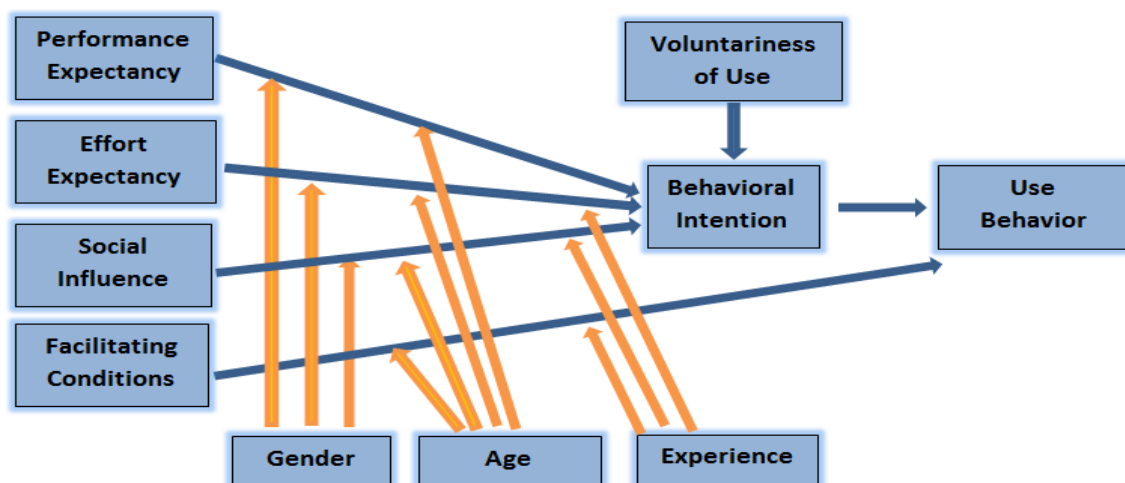
Figure 1: Technology Acceptance Model (TAM)



Source : Davis, 1993

Research studies done using the TAM model assume that usage of technology is voluntary. As per the findings of Amaoko-Gyampah & Salam (2004), this assumption is deemed unsuitable as the adoption of ERP system in an organization is mandatory (i.e. it is not the users' decision whether to use the system for work or not; they must use it since it is implemented by the organization). TAM model thus provides limited explanations of user behaviour, attitudes and user acceptance of ERP (Brown et al. 2002). Venkatesh et al. (2003) proposed the Unified Theory of Acceptance and Use of Technology (UTAUT) represented in Figure 2 as an alternative to TAM. UTAUT is a combination of eight user acceptance models (including TAM) and is seen as an improvement to TAM. In contrast to TAM, UTAUT takes into account the fact that some systems are mandatory and others voluntary and results obtained using this model explained end-users' acceptance of a mandatory account management and accounting system more clearly than the results obtained using TAM (Venkatesh et al., 2003). Therefore the UTAUT model was used for the purpose of this study.

Figure 2 Unified Theory of Acceptance and Use of Technology (UTAUT)



Source: (Venkatesh et al., 2003)

As per Venkatesh et al. (2003), the performance expectancy (PE) factor identified in UTAUT was derived from the perceived usefulness factor identified in TAM. Their findings disclosed that performance expectancy strongly influenced usage of ERP systems and perceived usefulness was found to be the best predictor of ERP end-user satisfaction. Venkatesh et al. (2003) further describe performance expectancy as “the degree to which an individual believes that using the system will help him or her to attain gains in job performance”. Findings of Amaoko-Gyampah (2004) confirmed this definition by revealing that end-users are more concerned with whether an ERP system can help them perform their daily job functions than with its capabilities to integrate data.

The effort expectancy (EE) factor identified in UTAUT was derived from the perceived ease of use factor identified in TAM (Venkatesh et al., 2003). Effort expectancy is defined as “the degree of ease associated with the use of the system” (Venkatesh et al., 2003). Venkatesh et al. (2003) found that effort expectancy determined end-users’ intention to use an information system.

Social influence is defined by Venkatesh et al (2003) as the “degree to which others believe he or she should use the new system”. A number of researches discovered that this factor has significant influence on user acceptance especially in case of an adoption of a new system. When new technologies are implemented within an organisation, social influence may arise because individuals experience ambiguity and uncertainty about the value of a new information technology for their work (Weick, 1990). Therefore, they seek to interpret and to assign meanings to the technology and its capabilities (Prasad, 1993). During this sense making process, individuals draw upon the prevailing institutions and social circles, in addition to exercising their own knowledge in measuring a new technology’s value to themselves and the organisation (Jasperson, Sambamurthy & Zmud, 1999; Venkatesh et al., 2003). Social influence was only found to be significant in the early stages of use (Venkatesh & Davis, 2000; Venkatesh et al., 2003). Ekanayake et al (2012) also found that the effect of social influence (SI) on symbolic adoption of the ERP system by users in manufacturing organizations in Sri Lanka is low.

Facilitating conditions are another group of factors identified as having influence on the user acceptance of ERP systems. Facilitating conditions are described as “the degree to which an individual believes that an organisational and technical infrastructure exists to support use of the system” (Venkatesh et al., 2003, p453). The main factors believed to be part of facilitating conditions include training and support and belief in the system. Training has been identified as one of the important factors for end-user acceptance of ERP

systems(Amaoko-Gyampah, 2004; Amaoko-Gyampah & Salam, 2004; Venkatesh,1999).Training gives end-users time to adjust to the change that will occur with the implementation of an ERP system and allows them to gain first-hand experience and explore the usefulness of the system (Amaoko-Gyampah & Salam, 2004). Brown et al. (2002) found that training increased self-efficacy of users as they understood better how the system improve their job function. Shared belief is described as the extent to which the users believe that use of ERP system will bring positive results to the organization as a whole. Amoako-Gyampah (2004) states that if all end-users have a shared belief and an understanding of why the ERP system is being implemented, including how it would benefit the organisation and improve their work environment, the system will be more readily accepted).

Studies conducted by Venkatesh et al. (2003) Age, gender and experience were found to be moderating variables. They identified age as a moderating variable for the relationship between: Performance expectancy and system use; Effort expectancy and system use; Social influence and system use; Facilitating conditions and system use.

Venkatesh and Morris (2000) and Yi et al. (2006) discovered that gender influences the use of any information system in both mandatory and voluntary settings. Accordingly, male end-users were observed to be more comfortable with new systems whereas female end-users were observed to have higher levels of computer anxiety and their perceived ease of use tended to be lower than that of their males. Venkatesh et al. (2003) identified gender as a moderating variable for the relationships between: Performance expectancy and system use; Effort expectancy and system use; Social influence and system use.

Venkatesh et al. (2003) defined experience as ‘experience with the technology’. They discovered that experience would enhance the end-user’s confidence in their ability to understand and use the information systems in performing their tasks. They gathered their results at different stages of the training program run in conjunction with their study and found in their research that experience had a moderating influence on the relationship between: Effort expectancy and system use; Social influence and system use; Facilitating conditions and system use.

The UTAUT model uses use behaviour (actual use of the system) as the main factor indicating acceptance of a technology (Venkatesh et al., 2003). The UTAUT model suggests that behavioural intention strongly influences use behaviour. Behavioural intention refers to the intention of an end-user to make use of the new technology. Amaoko-Gyampah &Salam, 2004 state that use of an ERP system includes both mandatory and voluntary usage.

Mandatory use represents the level of use needed to perform minimal job functions; usage beyond that becomes voluntary. Venkatesh et al. (2003) believe that all independent variables except for facilitating conditions influence use behaviour indirectly through behavioural intention. However researchers Rawstorne, Jayasuriya and Caputi (1998) and Brown et al. (2002) concluded that the behavioural intention may not be suitable for measuring acceptance in a mandatory environment because the results obtained were contradicting and limited in terms of the explanations of end-users behaviour. Symbolic adoption has been proposed as a more superior dependant variable when measuring end-users' acceptance of ERP systems by Karahanna (1999). Symbolic adoption was first suggested as a means of measuring acceptance of new technologies by Klonglan and Coward (1970) and is described as an end-user's "mental acceptance" of a new system (Nah et al., 2004). Rawstorne et al. (1998) believe that end-users in a mandatory setting undergo symbolic adoption before actual system acceptance takes place and that end-users in a mandatory environment will show differences in symbolic adoption and these differences can then be used to investigate and evaluate end-users' adoption of ERP systems.

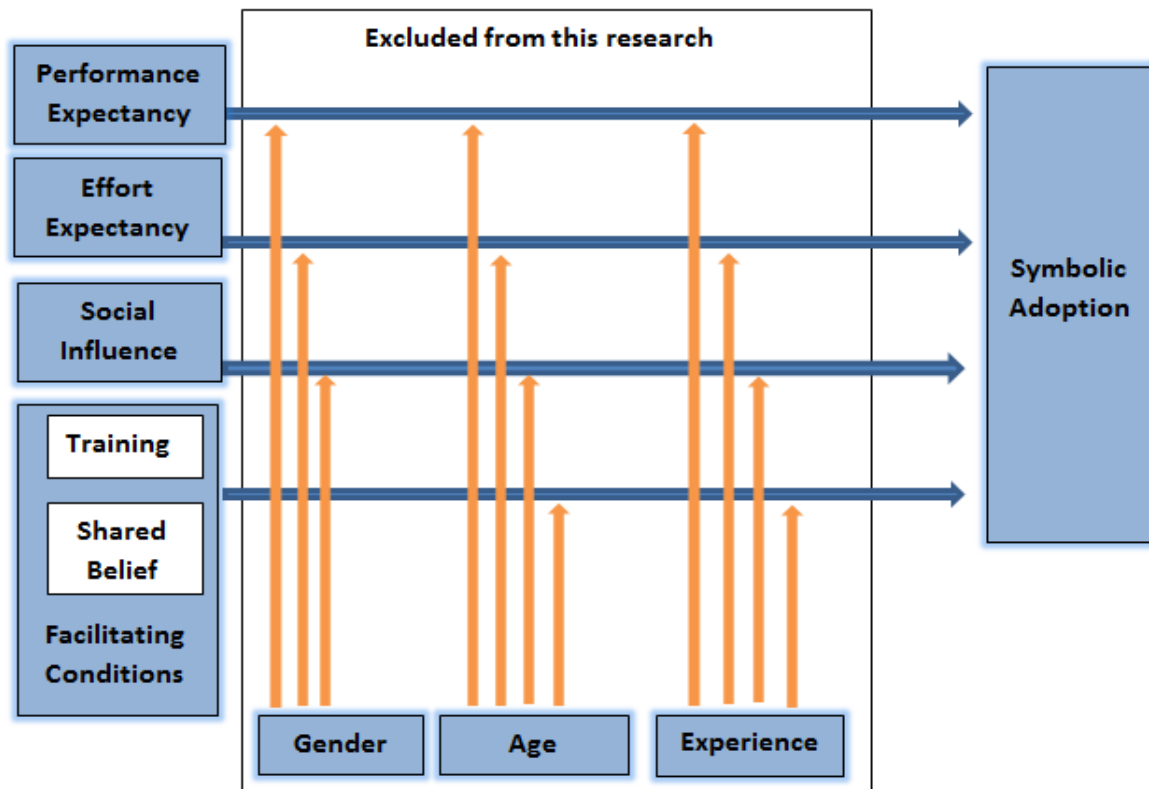
As mentioned above, several studies have used the UTAUT model and TAM model to understand the factors determining end user acceptance of ERP systems. In Sri Lankan context we could find one notable and similar research conducted by Ekanayake et al. (2012) in two large scale manufacturing companies in Sri Lanka. This study revealed that level of end-users acceptance of ERP system was in a fairly satisfactory level; but not in a high level. Their findings revealed that factors such as effort expectancy, social influence, facilitating conditions and attitude towards use of system were positively correlated with symbolic adoption of ERP. However influence of social factors on user acceptance was found to be low. As a result management attention and direction after ERP implementation was low. Venkatesh et al (2000) in their study showed that attitudes are not significant in end-user acceptance of the system. However, this study emphasized the importance of creating a shared belief on the benefits of ERP which is essential to create positive attitudes towards ERP systems. Kennedy Gunawardene et al. in 2011 have conducted a research on the impact of ERP implementation for management accounting in private companies of Sri Lanka. The research findings imply that collaboration between ERP vendors and the organization as well as employee training and participation are successful ingredients in ERP usage in an organization.

In our study we seek to understand the factors affecting the end-user acceptance of ERP systems in the apparel manufacturing industry. We make use of the UTAUT model for this

purpose. Through this study we will be able to discover the relationship between end user acceptance and the other contributing factors such as Performance expectancy (PE), Effort Expectancy (EE), Social Influence (SI) and Facilitating Conditions (FC).

Conceptual Diagram

Figure 3 Conceptual Diagram



The above figure shows the model adopted by this study to test the hypotheses. The model is derived from UTAUT proposed by Venkatesh et al. (2003) (Figure 2) with a few adjustments. The behavioural intention factor and the Use Behaviour factor have been replaced with the symbolic adoption factor since it has been viewed as a more suitable measure of end-users' acceptance of ERP systems. The voluntariness moderating variable has been removed from the model because end-users of ERP systems are mandated to use the system and therefore it has been deemed redundant to measure voluntariness. The two constructs: training and shared belief replaced the facilitating conditions construct. Although experience, age and gender were included in the model they are excluded from this research. Experience factor is excluded from this because, as an exploratory study, this research was done at a point in time and not longitudinally. We have decided not to discriminate between age and gender in this study as the main focus of this study is exploring the major factors affecting end-user acceptance of ERP systems. It was also discovered that there exists a correlation between

symbolic adoption and perceived ease of use; perceived compatibility and attitude toward system (Nah et al. 2004). This confirmed the need for validating further relationships and hence further research.

Hypotheses

H1. Performance expectancy has positive impact on end-users symbolic adoption of ERP system.

H2. There is a positive and significant relationship between effort expectancy and symbolic adoption of ERP systems.

H3. Social influence positively influences the users' symbolic adoption of ERP.

H4. There is a positive relationship between training and symbolic adoption.

H5. There is a positive relationship between shared belief and symbolic adoption.

3. Methodology

Research Approach

In this research the Positivistic Paradigm is used. The research approach will use the quantitative method with questionnaires as the main data collection tools to find out the end user acceptance of Enterprise Resource Planning Systems in the selected manufacturing organizations.

Population and Sample

The study was conducted in two large-scale apparel manufacturing organizations where ERP systems were implemented. Two organizations were from apparel industries namely; Hirdaramani Group of Companies and MAS Holdings respectively. Hirdaramani Group of Companies and MAS Holdings were leading apparel manufacturers in the world market. They adopted several strategies to maximize the productivity of the organizations. Some of them were implementing ERP and lean practices. MAS Holdings was south Asia's largest apparel group, manufacturing lingerie, active wear and swimwear. The company was the largest user of enterprise resource planning software in Sri Lanka. MAS had been the first Asian apparel plant to use enterprise software.

For the purpose of this research ERP users at executive level and above were selected as the population. Total population is approximately 250 ERP users in both manufacturing companies. Among them 160 ERP users were selected for the research. The sample has been selected as follows.

Table 1 Population and Sample

Organization	Population	Selected Sample	Percentage %
Hirdaramani Group of Companies	100	60	60%
MAS Holdings	150	100	66.6%
Total	250	160	64%

Data Collection

A questionnaire used to collect the required data for the research. The questions used in the questionnaire were adopted from relevant prior research. The adopted items were tested for reliability and validated and wording changes were made to tailor the instrument to match with an ERP environment.

The questionnaire consisted of two main parts. The first part involved demographic questions designed to solicit information about gender, age, level of education, working position, ERP experience of individuals and the organization and frequently used ERP modules by the users. The second part consisted of the items measuring the performance expectancy, effort expectancy, social influence, facilitating conditions and symbolic adoption of ERP system. A five point Likert-type scale was used where 5 - Strongly Agree, 4 – Agree, 3 – Neutral, 2 – Disagree, 1– Strongly Disagree.

A pilot survey was conducted to verify the various dimensions of the questionnaire such as language used, ease of completing the questionnaire and appropriateness of questions with relevance to usage behaviour. Five ERP users at Hirdaramani were asked to fill in the questionnaire. Feedback was obtained about the clarity, wordings, interpretation, and appropriateness of the questions. The pilot test resulted in several small revisions to the original questionnaire that included rewording of a few items and some items were dropped.

Both Soft copies and hard copies of the finalized questionnaire were distributed among 200 ERP users at Hirdaramani and MAS Holdings (MAS Active Linea Intimo, Linea Aqua, and MAS Active). Soft copies were distributed via e-mail.

We have developed the following codes for the purpose of our analysis.

Table 2 Codes and question summary

Code	Construct	Question Summary
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PE1-PE5	Performance Expectation	System use increases my job performance.
EE1-EE4	Effort Expectancy	The system is easy to use.
SI1-SI5	Social Influence	Attitude and behaviours of others affected my system perceptions.
TRN1-TRN4	Training	System training was good.
SB1-SB3	Shared Belief	There is shared belief in the system.
SA1-SA2	Symbolic Adoption	I have symbolically adopted the system.

Data Analysis

SPSS statistical data analysis software was used to process data, obtain outputs and as basis for interpretation. First the data were input into the software, then the questions under each dimension (PE, EE, SI, TRN, SB and SA) were grouped and the means were computed. In order to test hypothesis and to identify correlations, Spearman's rho was used.

4. Results and Discussion

This study was conducted in two leading apparel manufacturing organizations which had implemented and used ERP systems for a considerable period of time. We sent 160 questionnaires out of which only 76 questionnaires were duly filled and received which resulted in a response rate of 47.5%. This is fairly acceptable in the Sri Lankan context given the usual lower response rates observed

Users' Perceptions on ERP Acceptance Influencing Factors and Symbolic Adoption

It was observed that the mean value of certain factors such as EE and SI were closer to neutral point. This indicated that user perceptions on those factors were not very positive. Performance Expectancy, Symbolic adoption, Shared Belief and Training had high mean values indicating the positive opinions of ERP users.

Table 3. Summary of Means and Standard Deviations

Construct	Mean	N	Std. Deviation
MEAN_PE	4.5655	76	0.34625
MEAN_EE	3.5691	76	0.38858

MEAN_SI	2.7395	76	0.56570
MEAN_TRN	3.9191	76	0.40538
MEAN_SB	4.4500	76	0.41855
MEAN_SA	4.5132	76	0.50315

(MEAN_PE equals the average of means scored for all the questions under Performance Expectancy factor. This is similarly applied to other factors – EE, SI, TRN, SB and SA)

Training provided the experience and knowledge that allows users of the ERP system to explore the system's technical and functional capabilities and features. However, it was revealed that most of the subjects had not received a comprehensive training prior to the usage of ERP by them. But they believe that training allow them to explore the easiness of using the system. Users were more or less aware about the importance of their involvement and commitment in achieving the benefits of ERP. They were also concerned about the facilitating conditions that needed to be further improved in order to improve the end-user acceptance of ERP systems. This confirmed that managers may undertake initiatives coupled with providing effective training on ERP systems to affect the acceptance of ERP systems by the employees.

Discussions held with some of the ERP users, revealed that they feel difficult to learn how to operate the system. They had to put a considerable effort to learn the system and use it for their jobs. However, most of the users had good understanding of the benefits of using ERP. But some users believe that some of the business processes still cannot be handled using ERP.

Social influence was found to have neither positive nor significant relationship with symbolic adoption.

Factors Affecting End-user acceptance of ERP

Correlation analysis showed that there was a positive correlation between all the influencing factors and the symbolic adoption (SA) except for Social Influence (SI).

Table 4. Spearman's Correlation and p-values

Hypotheses		Spearman's rho (Correlation Coefficient)	Sig. (2-tailed)
H1	PE & SA	0.407**	0
H2	EE & SA	0.210*	0.029
H3	SI & SA	-0.162	0.161
H4	TRN & SA	0.435*	0.031
H5	SB & SA	0.508**	0

Correlation was stronger for performance expectancy and facilitating conditions -Training (TRN) and Shared Beliefs (SB). Effect of social influence was neither positive nor significant. This study confirms the findings of research findings of Venkatesh et al (2000). The subjects had higher expectations of the contribution of ERP systems on their job performance. Most of them believed that ERP systems would help them perform their job-related tasks effectively, quickly and with good quality. However, the effort they expected to put in as a result of ERP usage is observed to be high. This could be due to the advanced and less user-friendly nature of the system as perceived by some of the ERP users.

Social Influence played a negative role and insignificant role in the symbolic adoption of the ERP systems by the users. Most of the users did not believe they were being influenced by the immediate society they interact with in deciding on the symbolic adoption of the ERP systems.

Training was observed to be a vital factor in determining whether to symbolically adopt the system or not by the users. A considerable number of users emphasised the fact that they were not initially provided with a complete and a comprehensive training on the ERP usage prior to the use of the ERP system-which they believe to be a vital factor. However, once they obtained the training or from the little training they were provided with at the time, they were able to perform their tasks more quickly and effectively. One of the factors contributing to most of the users who found it difficult to learn the system and thus required much effort could be stated as lack of training.

The users, their colleagues and their superiors believe in the benefits of the ERP system. They believe that ERP systems could help them to perform their job more efficiently and effectively.

5. Limitations of the research

When this research was undertaken both organizations have already implemented the ERP system and they have been using the system for more than 10 years. Further this study is done at a certain point in time and not longitudinally. Longitudinal studies could be conducted on this subject which could provide insights into how experience had played a role in changing the aspects of ERP acceptance by users over the years. The research findings might be inapplicable to the early stage of the ERP adoption. Further, we have conducted this research by using two companies using two different ERP systems. This could have direct implications on the influencing factors and symbolic adoption. We have also ignored the implications of age and gender on the relationships between the factors. Further research could be conducted by taking these factors into consideration.

6. Conclusion

Organizations spend considerable amount of capital and resources in ERP systems, hoping to improve business performance. ERP systems are vital components of today's business organization owing to the higher level of effectiveness and efficiency they add to the business as a whole. ERP systems streamline the business processes by integrating and coordinating the various business functions and divisions. Therefore there is an increasing trend of ERP system adoption by organizations. In some organizations ERP implementation was successful but the true benefits of productivity of ERP were very poor after the system implementation. Post-implementation period is crucial to determine the true value of an ERP to an organization. Mere implementation of the ERP system will not ensure higher performance of the organization nor the ERP system's effectiveness. In fact most of the organizations have failed to exploit the benefits of the ERP systems they have adopted owing to the lack of user acceptance of the system owing to several reasons. Literature review revealed that factors such as Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), Training (TRN) and Shared Belief (SB) influence the Symbolic Adoption (SA) of ERP systems by the end users. However, in Sri Lankan context not all factors were found to affect Symbolic Adoption (SA).

This research helped to identify whether and how the key factors as suggested in the UTAUT model presented by Venkatesh et al (2003) apply in the Sri Lankan apparel manufacturing industry.

Our findings suggested that level of end-users adoption of ERP system is at a satisfactory level; but not at a high level. Therefore, organizations needed to put further effort to increase the adoption of ERP systems by focusing on influencing factors. The analysis presented by this study showed that performance expectancy, effort expectancy and facilitating conditions were correlated with symbolic adoption of ERP.

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Appendix

Summary of the Questionnaire and codes

Factor	Code	Questions Summary
Performance Expectation	PE1	Using the ERP system in my job would enable me to accomplish the tasks quickly.
	PE2	The ERP system helps me to handle my job more effectively.
	PE3	I would find the ERP system useful in my job.
	PE4	Use of the system will have an effect on the performance of my job.
	PE5	Using the ERP system improves the quality of the work I do.
Effort Expectancy	EE1	I would find the ERP system to be flexible to interact with.
	EE2	User interface of the ERP system is user-friendly.
	EE3	Learning to operate the ERP system is easy for me.
	EE4	Working with the system is simple; it is easy to understand what is going on.
Social Influence	SI1	People who influence my behavior think that I should use the ERP system.
	SI2	People who are important to me think that I should use the ERP system.
	SI3	I use the system because of the proportion of coworkers who use the ERP system.
	SI4	My supervisor is very supportive of the use of the ERP system for my job.
	SI5	Management is really keen to see that we are happy with using the system.
Training	TRN1	Training provided to me on ERP was complete.
	TRN2	My level of understanding was substantially improved after going through the training program.
	TRN3	The training gave me confidence in the ERP system.
	TRN4	The trainers were knowledgeable and aided me in my understanding of the ERP system.
Shared Belief	SB1	I believe in the benefits of the ERP system.
	SB2	My peers believe in the benefits of the ERP system.
	SB3	My management team believes in the benefits of the ERP system.
Symbolic Adoption	SA1	I am enthusiastic about using the ERP system.
	SA2	It is my desire to see the full utilization and deployment of the ERP system.