

SME EIS adoption: Towards development of EIS for SMEs in Sri Lanka

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Abstract — Small and Medium Enterprises (SMEs) compose a large portion of Sri Lankan economy due to their significant contribution in terms of employment, domestic resource usage, innovation, exports, regional development, and stimulating other economic activities. This sector is believed to be the ‘backbone’ of both developed and developing economies. Therefore healthy performance of SME sector is paramount important in economy of any country.

The businesses, irrespective of their scale of operation, are digitizing rapidly, to enhance their presence and delivery. The information systems have become a smart approach of exploiting in this digitization. However, necessitate of these ‘chief players’ in the economy have been ignored by majority of Enterprise Information System (EIS) applications.

The paper first identifies and prioritises factors that determine SMEs willingness and attractiveness towards EISs, using TOE (Technology-Organisation-Environment) Framework following recommendations EIS vendors, SME and IT policy makers can adapt to address the gap in current level and the potential for SME EIS adoption in Sri Lanka.

The research findings will assist SMEs to create business opportunities with information management and reconcile pressures from competition. Further specific SME ICT needs to be addressed strategically, in order to ensure their competitive position in the economy, will be discussed.

Keywords — SME, Enterprise Information Systems/EIS, TOE Framework

I. INTRODUCTION

Small and Medium sized Enterprises (SMEs) are of significant importance to any national economy irrespective of level of development. According to the banking survey done by International Finance Corporation (IFC) in 2006/2007 of SME in Sri Lanka, SMEs constitute 80 - 90 percent of total establishments and 20 percent of industrial value added and more than 70 percent of employment opportunities. Further the contribution of SME sector has been increased from 40 percent in 2010 to 52 percent in 2011 (Ministry of Finance and Planning, Annual Report, 2011).

The general opinion is that the SMEs do not use new technologies to their full potential and their principal focus is

financial figures; furthermore most of these technologies are seen as a cost rather than an investment and they are not trusted by the SMEs [4]. This is common even in information system implementations.

The keystone of this effort is to find the reasons for why Sri Lankan SMEs are hesitant to move towards Enterprise Information Systems (EISs). The framework that may effectively complement with the user needs and vendor capabilities of going headed for coming up with better EIS solutions for SME segment which will assist EIS vendors in formulating product development and implementation strategies for Sri Lanka. Following objectives are to be undertaken completely.

1. To identify and describe various factors that drops the focus of SMEs towards EIS
2. To provide full visibility on the EIS solutions the SMEs expecting
3. To identify the potential approaches the EIS vendors/ solution providers can adapt in order to meet those needs.

II. LITERATURE SURVEY

This section reviews prior research on SME segment, the context of EIS in the business angle, and the role of EIS in achieving competitive advantage.

A. Small and Medium Enterprises (SMEs)

SMEs play a central role in all most all economies with their contribution on promoting entrepreneurial skills, innovation, employment, investment/ growth and income generation.

Globally SME constitute approximately 95 per cent of registered firms contributing more than 50 per cent to the Gross Domestic Product (GDP) in developed countries.

It is believed that the economic growth is directly related to the success of private sector, called “the Engine of Economic Growth”. Large companies tend to outsource their activities to SMEs as it is cheaper, efficient and quick; and most SMEs are specialized for some goods or services that these large companies are looking for. Therefore the growth of large companies highly depends on how supporting SMEs trade and business successfully. In this ground SMEs

consider as major economic players and a potential source of national, regional and local economic growth [32].

The literature points out significant differences between SMEs and large organizations. SME top management is usually involved in day-to-day activities [22]. However, managers may have limited formal training [18]. Absence of long-term planning is another dominant factor [13]. On the other hand, SMEs have relatively informal structures and culture [24], which increase cross-functional exchanges, and small management teams; that results in efficient decision making [9]. SMEs still tend to be too much task-oriented, leaving almost no space for the adaptation of cross-functional capabilities into rigid business processes [5].

One major disadvantage of SMEs is lack of human and financial resources ([9]; [13]). Regarding IT, SMEs seldom have dedicated IT staff, let alone a formal department ([1]; [19]).

B. Enterprise Information Systems (EIS)

EIS is defined as “commercial software packages that enable the integration of transaction-oriented data and business processes throughout an organization and perhaps eventually throughout the entire inter-organizational supply chain” [21].

Therefore, those systems provides a technology platform that enables organizations to integrate and coordinate their business processes, while ensuring that information can be shared across all functional levels and management hierarchies, serving the entire enterprise, or at least two functional departments.

EIS applications, target any type of organization (i.e. corporations, partnerships, sole proprietorships, nonprofits, government agencies, and etc); target both large and small organizations (Fortune 500 to ‘Mom and Pop’), include function-specific (accounting, HR, Supply chain, etc.) and industry-specific (manufacturing, retail, healthcare, etc.) solutions.

EIS can include Enterprise Resource Planning (ERP), Customer Relationship Management (CRM), Supply Chain Management (SCM), and e-procurement systems [30]. Without a better understanding of the complex processes and differentiating factors that affect the adoption level of EIS innovations, the drive to adopt and develop IS innovations will not successfully contribute to SMEs’ competitiveness [20].

Therefore this type of software is a useful tool that businesses are turning to, in order to build strong capabilities, improve performance, undertake better decision-making, and achieve a competitive advantage.

C. EIS implementation at SMEs

SMEs significantly differ from large companies in important ways affecting their information-seeking practices [4]. Thus, the adoption of EIS innovations in SMEs cannot be a miniaturized version of larger organizations.

Simmons et al. (2011) reported information technology benefits SMEs as increased competitiveness and improved performance. Various researchers have recommended research into the implementation and use of EISs at SMEs ([15]; [19]). Huin (2004, p. 516) argues that unless differences between small and large firms are understood, managing ERP projects in SMEs “..will continue to be slow,

painful and at times even unfruitful”. However, not many studies appear to have tackled this challenge yet.

According to a review in available literature, organizations adopting EIS certainly acquire benefits such as increase suppliers’ and customers’ satisfaction and increase in productivity, but the level of return on investment (ROI) is rather low. Findings of the previous researches also suggest that many organizations adopting EIS have serious conflicts with their business strategies and the majorities of EIS projects are often characterized by delays and cost overruns.

Combinations of factors have to consider when undertaking an EIS implementation including, top management support, business plan and vision, re-engineering business process, effective project management and project champion, careful package selection process, teamwork and composition, user involvement and education, and training [28].

The critical success factors for EIS implementation include top management support, business plan and vision, business process reengineering, effective project management, teamwork and composition, system selection and user involvement and training [21]. The role of the CEO as the principal decision maker in SMEs [6], and the dependency of SMEs on external IT expertise [33] have been considered as the most critical factors.

D. Research Models/ theories adopted

Following theoretical models have been used to examine SMEs’ adoption of information systems and related innovations.

- Innovation diffusion theory [27]
- Resource-based view [23]
- Technology Acceptance Model (TAM) [12]
- Theory of Planned Behavior (TPB) [14]
- Combined TAM and TPB [29]
- Technology-Organization-Environment (TOE) framework ([3]; [25]; [28])
- Unified Theory of Acceptance and Use of Technology (UTAUT) [2]

III. RESEARCH METHODOLOGY

Many studies have been conducted in order to establish influential factors, critical success factors, reasons for successful and failure EISs adoption and to provide guidelines to either to assess readiness or to guide implementation in order to ensure a successful EIS adoption. However, very little research has been conducted in Sri Lanka, irrespective of strong emphasise to strengthen SME sector.

The probable factors influencing EIS adoption by SMEs were identified through a literature review. Technology – Organization - Environment (TOE) framework developed by Tornatzky and Fleischer (1990) has been used to identify the influential factors and test the validity in Sri Lankan context.

TOE framework has been tested and validated by many technology adoption studies (e.g. [3]; [16]; [17]; [25]; [28]). This framework has also been claimed to be a generic theory of technology adoption/diffusion [35] that can be used to study SMEs’ adoption of EIS.

A preliminary survey was conducted with 15 SMEs, 10 manufacturing and five service companies; and the companies approximately reflect the population’s statistical distribution in the industrial sectors. The exploratory intention

of the preliminary survey was to identify the suitability of TOE framework in Sri Lanka.

Based on preliminary survey findings on subject matter, few other factors were identified as influential in SME EIS adoption. These factors were further investigated in literature and four additional factors were finally added to the framework as shown in Table 1 (Factor No. 10, 11, 16, and 17) to be tested and verified in case study approach. The weights associated with identified variables were also extracted through relevant literature.

TABLE 1
REVISED FRAMEWORK ON SME EIS ADOPTION FACTORS AFTER
PRELIMINARY SURVEY

Technological Perspective	Organizational Perspective	Environmental Perspective
1. Relative advantage	6. Size	12. Industry
2. Compatibility	7. IT Experience	13. Market Scope
3. Complexity	8. Top Management Support	14. Competitive Pressure
4. Trail ability	9. Organizational Readiness	15. External Support ICT
5. Observe ability	10. Cultural Aspects [11]	16. Economy and Economic growth [8]
	11. Availability and affordability of third party support in implementation [4]	17. Government Support ([11]; [8])

Case study method was selected with its potential to accomplish analysis in depth. Multiple respondents were targeted in organizations to ensure information richness and avoid possible biasness. The case study companies were selected considering following characteristics.

- Have ensured the survival in the industry - The necessity on IT of an emerging or ruining SME might not be high. Further it is assumed to be only the 'fittest' SME will be survive after five years of establishment.
- Have interest on EISs or knowledgeable about the Information and Communication Technology (ICT) concepts
- Sri Lankan players - The real Sri Lanka context can be observed only through 'locally born' companies.

Number of people employ, amount of capital invested, amount of turnover and/or balance sheet figures, nature of business are taken as basis in defining SMEs in Sri Lanka. However, proper definition is not specified for SMEs in Sri Lanka apart from few definitions given by some institutions. In Sri Lanka, some say that an enterprise which has less than 99 people and an asset base of four million rupees can be termed an SME. Then another definition is less than 50 people but an asset base of Rs 20 million. The World Bank defines enterprise size in Sri Lanka base on number of employees; if any enterprise has below 49 employees, it is termed as small and below 99 is termed as medium.

The number of employees as the criterion for the size appears reasonable as it distinguishes between enterprises regardless the line of business, and the revenue of amount of capital investment has to revise frequently to align with inflation (Table 2).

TABLE 2
SME DEFINITION FOR RESEARCH PURPOSE

Small	Medium	Large

Number of Employees	Less than 49	50 - 99	More than 100

Interviewer and/or interviewee administrated questionnaire was used to validate the factors identified from the literature review. The questionnaires are intended to gather following information.

- General Information (Organization name, Industry, No. of employees working)
- Open ended questions regarding basic factual information on the EISs and its implementation
- Statements to gather opinion on EIS based on a five point Likert scale

IV. RESEARCH DESIGN

Hypothesis was developed to investigate the causes for relatively less adoption of EIS in SMEs in Sri Lanka. Therefore the hypothesis would assess the applicability of each factor separately with the intention of prioritising.

H_0 : TOE Framework factor is not relevant in EISs adoption in Sri Lanka ($\mu \leq \mu_0$)

H_1 : TOE Framework factor is relevant in EISs adoption in Sri Lanka ($\mu > \mu_0$)

(Note: According to the likert scale used in the questionnaire, 3 represents "Neutral" level agreed level on the opinion)

The case study companies, sticking into purposeful sampling, comprised of two manufacturing companies, a hotel and a hospital. Table 3 summarises the key attributes of case study companies.

Multiple respondents, in different functional areas and different levels in the organisational hierarchy, were approached in each organisation to collect their opinion on EIS adoption. 20 fully attempted questionnaires and/ or interviews were used for further investigations.

TABLE 3
SUMMARY OF ATTRIBUTES OF THE CASE STUDY ORGANIZATIONS

Name	MCo1 (Pvt) Ltd.	MCo2 (Pvt) Ltd.	HCo (Pvt) Ltd.	HtCo (Pvt) Ltd.
Industry Sector	Manufacturing - BOI Company	Manufacturing - Export	Healthcare	Tourism
No. of employees	Below 49	49 - 99	49 - 99	99 - 129
Annual revenue/Scale	Rs 100 - 199 M Medium	Rs 50 - 99 M Medium	Medium	Medium
Nature of the EIS Implementation	ERP Since August 2010	MS Office applications, Accounting Package	MS Office applications, Quickbook, Embedded EIS applications in Medical Equipments	Tauras - Reservation and Pay roll system (For 5 years)

Note: Representative names have been used.

V. RESULTS AND EVALUATION

The data set has been tested with Cronbach's Alpha for internal consistency before applying for the analysis. For results to be reliable, the variables have to obtain values greater than the cut off value of 0.7 as suggested by Nunnally (1978).

Mean values, standard deviation and coefficient of variance (COV) have been calculated for collected data using

SPSS (Refer Table 4) and t-test was used to check the preferences, and mean values were used for hypothesis

Cronbach's Alpha values

Organizational Perspective	0.854
Technological Perspective	0.956
Environmental Perspectives	0.962

TABLE 4
STATISTICAL CALCULATION ON DATA

Technique under each tool	t-value	Standard Div.	Mean	COV (%)	Rank
Technological Perspective					
Relative advantage	49.49	.241	4.645	5.20	1
Compatibility	12.35	.979	3.825	26.60	3
Complexity	15.922	.774	3.9	19.86	2
Trail ability	10	0	4	0	4
Observability	8.14	.737	1.9	38.8	5
Organizational Perspective					
Size	19.092	.298	1.8	16.56	5
IT Experience	6.427	.897	1.825	49.2	4
Top Management Support	20.023	.663	4.2	15.79	1
Organizational Readiness	18.97	.668	4	16.66	3
Culture	16.657	.771	4.065	18.98	2
Availability and affordability of third party support	3	0	0.4	0	6
Environmental Perspectives					
Market Scope	10.614	.774	2.6	29.79	4
Competitive Pressure	10.104	1.032	2.95	31.29	3
External ICT Support	9	1.14	3.367	35.13	1
Economy and Economic growth	10	0	2.3	0	5
Government support	39	.158	3.01	8.1	2

The calculated t - values under each variable are greater than 1.833 (Degree of freedom-df=9; Level of significance- $\alpha=0.05$); and therefore H_0 was rejected indicating that all the variables can be considered as applicable factors on EIS adoption in Sri Lankan SME context, but with varying significance.

The COV assured the reliability of applying mean for ranking of each EIS adoption factor. Therefore prioritization of investigative factors revealed the critical factors to address in SME EIS adoption (Table 5).

The key considerations drive SMEs to choose the EIS or/ and vendor (based on the ranking received) are relative advantage, complexity, top management support, organizational culture, and external ICT and government support. Expressly these considerations are EIS price, contribution on cost reduction and improve performances, provision of complete solution for client's needs/ level of customisation, requirement for structural and process changes, top management attitude, enthusiasm and encourage towards EIS, user training, organisational support for change management; domain/industry specific knowledge, provision of tailor made solutions and support by means of staff training and subsequent up-grade; and government emphasise on vendors and formulating regulations.

Difficulties in estimating project requirements, technical difficulties in configuration, knowledge gap of implementers and users, lack of commitment from top management, significant resistance from managers and users/staff, turnover of key project persons, unavailability of skilled project people, high costs of implementation, and lack of support and training from vendor are considered as the factors affect on effectiveness of EIS.

Problems in integrating with legacy systems, language barriers of staff, usability issues, and problematic automated data tracking due to unavailability of timely data and limited company/industry specific versions have been further identified as the limitations of existing EIS applications.

TABLE 5
PRIORITIZING SME EIS ADOPTION FACTORS IN SRI LANKAN CONTEXT

Technological Perspective	Organizational Perspective	Environmental Perspective
Relative advantage	Top Management Support	External ICT Support
Complexity	Cultural Aspects	Government Support
Compatibility	Organizational Readiness	Competitive Pressure
Trail ability	IT Experience	Market Scope
Observability	Size	Economy and Economic growth
	Availability and affordability of third party support in implementation	

However, the generalization of this reveal as 'SME EIS requirements' is relatively less accurate, due to the fact that the SMEs do not demonstrate the same level of IT adoption (in most cases the level of IT adoption among SMEs' is lower than the case study companies) as case study companies.

VI. DISCUSSION

Porter's Diamond theory and technology innovation triangle can be used to analyse the EIS development and deployment aspects as shown in Fig. 1.

Based on identified SME EIS needs, SMEs have to maximize the potential contribution of organisational factors in order to derive the benefits of these EIS applications, which is within their control; government, SME policy makers, and EIS vendor companies and related technology providers' contribution is vital in handling other two perspectives, (i.e. technological and environmental) in TOE framework.

A. Recommendations based on Business Environment

The proposed framework (Refer Fig.1) converses the 'job' of these external parties in technological and environment perspective in enhancing attractiveness of EIS for SMEs in Sri Lanka.

1) Government Role

The government intervention can be assessed in two ways; the government in association on establishing technology infrastructure and the government role in transferring developments in technology to SMEs.

Considering the inherent characteristics of SMEs in Sri Lanka, the government role in increasing the attractiveness among SMEs towards EIS applications is vital.

Most of SMEs that have been considered in Preliminary Survey, demonstrated their intention on EISs, however the lack of financial support act as a hinder on their investments.

The government can assist on the financial condition of such SMEs, assessing the EIS project success. With the concentration on a project like “e – Sri Lanka”, the government can give attention to those ‘chief players’ in the economy, which will definitely contribute towards the country’s economy in long run.

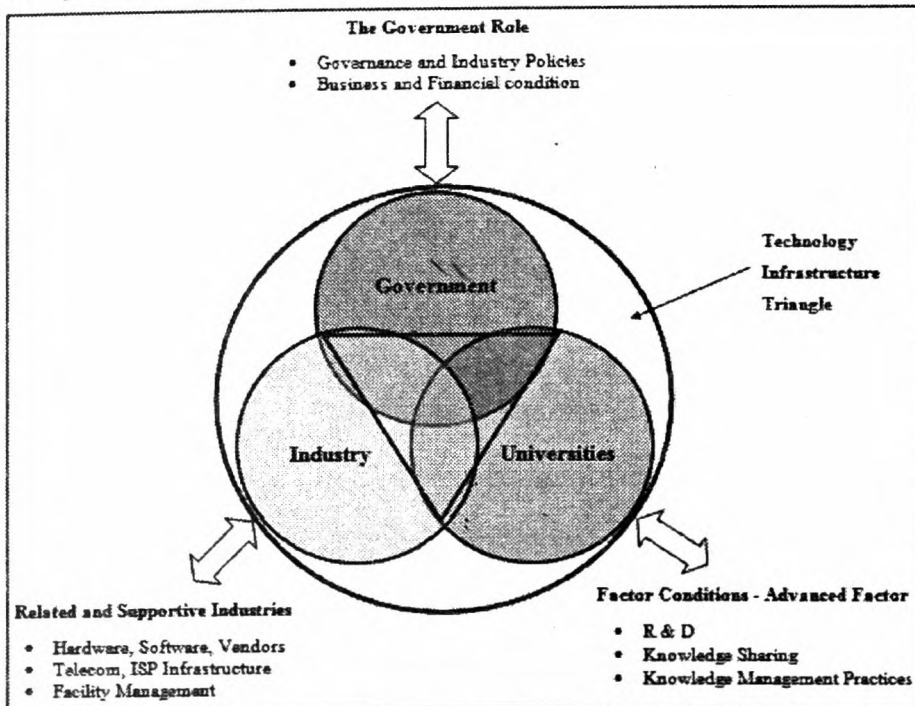


Fig. 1 EIS Development Framework aspects

Following approaches can also be considered to ensure SME EIS attractiveness.

- Government grants/ subsidies for equipments or services
- Industry association/ grant support
- Advice and consultancy from industry associations
- Free/ subsidized training on ICT for SMEs

However, it is needed to ensure that support measures are granted only to those enterprises which genuinely need them. Further clear definitions and instructions have to be placed to treat the stakeholders and distinctively identify SMEs vs. large.

2) *Related and Supportive Industries*

The ICT related and supportive industry collaboration can increase SME attractiveness towards EISs, with increased level of service provision, and impact on reduced cost on EIS applications and technology infrastructure. Therefore the collaboration will definitely create higher value addition.

For example, if hardware and software providers can collaboratively work on assessing SME ICT requirements, it will be more beneficial for SMEs as well as ICT vendors. As SMEs do not have advance ICT background and ICT requirements diverge significantly, same level of ICT solidity in terms of both hardware and software is not required. Therefore the specific ICT requirements can be decided with collaborative effort of these related and supportive party associations, in such a way where SMEs receive the most appropriate EIS solution for their requirements. Therefore the SMEs will be benefited due to the capability of those EIS solutions in handling their own ICT needs in an affordable fee.

Further, considering the SME side of these implementations, ‘SME clusters’ can be formulated based on their common ICT needs. One basis for these clusters is the industry they operate as their EIS/ICT needs can be similar. These SMEs can share same EIS application.

3) *Universities and related Advanced Factors*

The advanced factor includes skilled/ trained employees, Research and Development (R&D), and knowledge workers.

This group effort influence on transfer of expertise, contribution towards knowledge sharing, and will further impact on customer supplier relationship.

To promote innovation and improve access to R&D, specific provisions can be applied to universities and non-profit research centers enabling them to have a financial stake in SMEs. This cooperation will strengthens an enterprise by giving it a worthwhile financial partner and access to R&D. A route for the practical application of their innovative work can be offered to universities and research centers.

Further the universities’ or these research centers’ effort can be focused towards serving SMEs, for example university student project works.

B. *Recommendations based on ICT*

The adoption of ICT can be seen as one major factor of SMEs’ productivity, as the SMEs can achieve immerse business opportunities with ICT and eliminate the existing inefficiencies [7].

The e - business models that can be used by SMEs can be identified as shown in Fig. 3. Apart from common business application like e – mails, web sites, and e – commerce applications, concepts like virtual/ networked organizations and digital ecosystems can also be used to derive the benefit of ICT/EIS to SMEs.

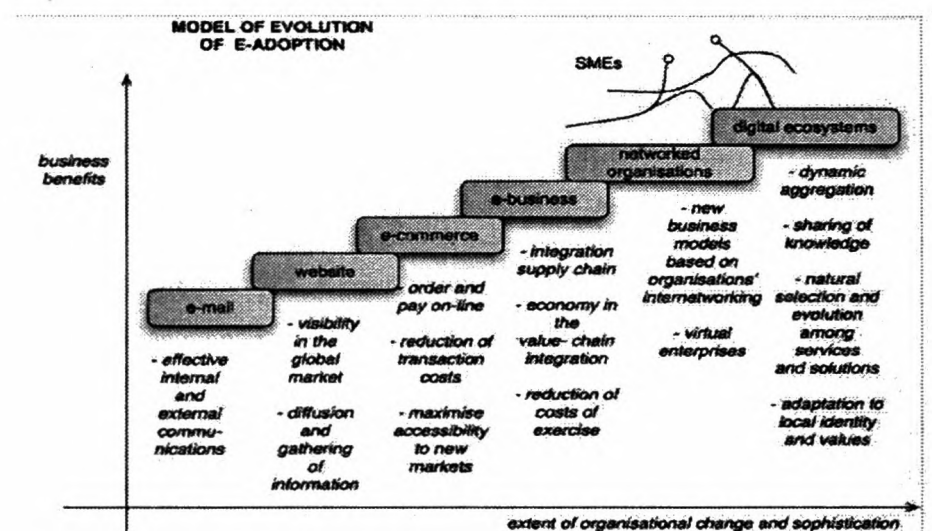


Fig. 2 Evolution in ICT-adoption: Increased complexity in business networking

Source: Study on e – commerce in small businesses - Information Age Partnership by Cisco

The concept of network/virtual organizations underlines the ‘internet-working’ organizations in order to achieve entire delivery product or service to customer. The concept of business clusters can be exercised in this scenario, as those networked organizations/clusters have kind of similar ICT requirements.

Therefore if EISs can be implemented targeting such clusters, the SMEs can share the same system among cluster, and thereby increase in their affordability.

The concept of digital ecosystem emphasizes on creating a favorable environment for businesses. The EIS vendors can especially consider the uniqueness exists in SMEs and based on that the systems have to be implemented. Considering the SMEs incapacity to invest in furnished EIS, the openings based on employing shared EIS, cross functional segregation and real time data updating can be considered.

Based on the findings the EIS adoption by SMEs can be identified considering four phase approach (Refer Fig. 3) on broader perspective. The initiation from business processes highlights to the adoption of EIS based on business process, but not vice versa.

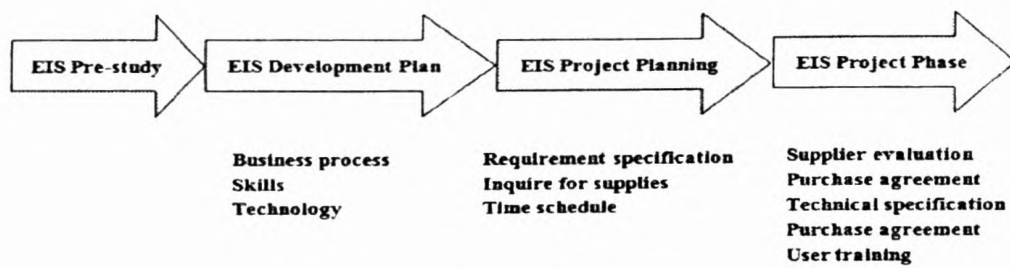


Fig 3 EIS supporting the Business Strategy (SME - EIS)

The business strategy on EIS adoption emphasizes on inter-relationship between business mission, vision and objectives. As this approach certainly supports the SMEs, EIS implementers have to focus on SME needs, rather than putting effort on customization of systems, because the over customization can be a nuisance in incorporating further versions.

The developments in ICT based on following concepts can relate to EIS implementation for SMEs in Sri Lanka. These concepts can use to mainly reducing the total cost of EIS implementation to SMEs. However, reliable and speedy internet connection would be a challenge for SMEs to address, if they are to use.

1) *Software as a Service (SaaS)*

SaaS is a software deployment model where software or applications are hosted by a vendor or provider to a customer over a network, which is customarily the Internet (What is SaaS, 2010). In this 'software distribution model' customers are able to hire software applications and use them on demand in a 'pay-as-you-go' fashion or through pre-determined time subscriptions (What is SaaS, 2010).

2) *Web-Based EIS (or online EIS)*

Web-based EISs are provided to customers over a network, which is typically the internet (which is usually in a SaaS manner). This type of EISs can be hosted by vendors or providers and the clients would only need a web browser to access, use and manage the system.

This system eliminates the need to allocate and distribute large quantities of hardware and consequent software needs throughout the organization [10], which would definitely become beneficial for SMEs.

3) *Service Oriented Architecture (SOA)*

SOA is an architectural framework that supports integrating business tasks as linked services that can be accessed over a network, when needed.

The users are allowed to place multiple service applications into a process or processes where each application function needs to be transformed into services which are then assembled into processes.

4) *Web Services*

Web service is a software system designed to support interoperable machine-to-machine interaction over a network. In the context of EIS, web services offer two main advantages; Web Services allow other user of organizations to access to same information employees get through EISs with a superior quality of service for reliability, security, manageability, routing, discovery, testing, and effectiveness; and reduction in costs through the hosted application model.

Therefore web service related EISs demonstrate considerable lower cost due to reduction in costs.

C. *Quality Function Deployment(QFD) Matrix for EIS/ ERP Implementation for SMEs in Sri Lanka*

The identified SME EIS requirements can be matched against the technical requirements in QFD model (though the case study companies demonstrate significant diverse level in terms of their IT needs due to their business processes).

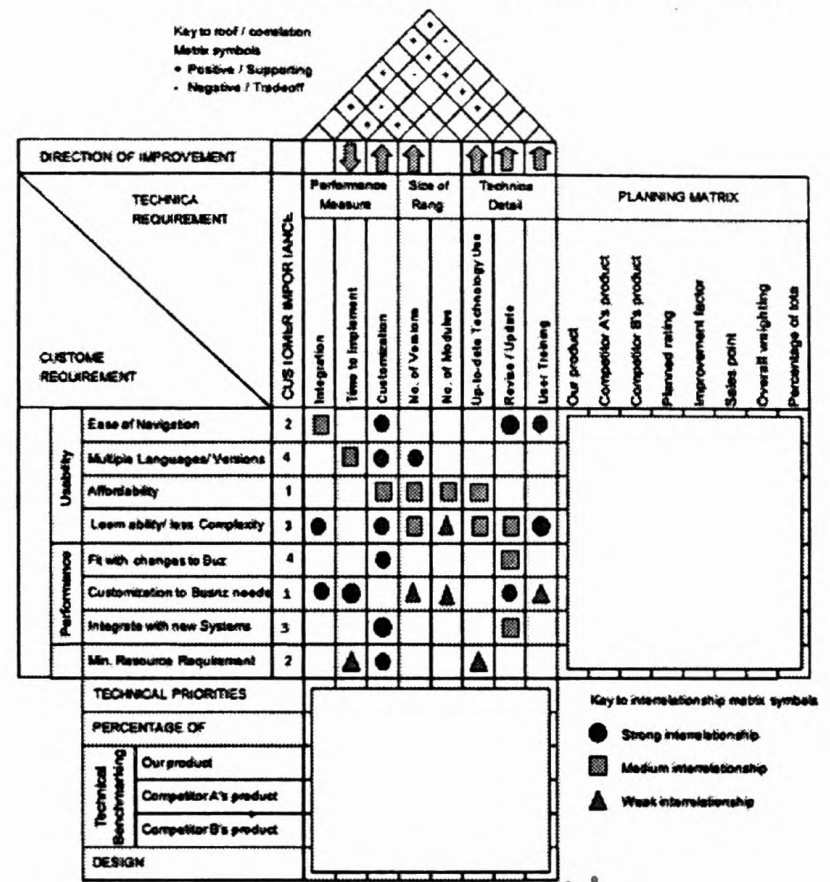


Fig. 4 Quality Function Deployment Matrix for EIS Implementation

Therefore considering the drawbacks of existing EIS applications and the imperative factors SMEs rummage around are being discussed in Fig. 4 QFD model. However, the findings have discussed in general in Sri Lankan SME context.

VII. CONCLUSIONS

SMEs can benefit either as producers of EIS or as users of EIS for purposes such as increased productivity, faster communications and reaching new clients. However, it must be noted at the outset that not all SMEs need to adopt ICT tools/EIS to the same degree of sophistication, due to the fact that their sophistication in business operations.

Like any firm, SME decision on which type of EIS products to adopt is based on the concrete benefits they can bring to its core business in short and/or long run, ICT capacity of its employees, and financial resources available for investment.

All most all Sri Lankan SMEs are familiar with basic ICT applications, such as fixed phone lines, mobile phones, fax, computers, and basic document processing software – like Microsoft Office, and this level of exposure is increasing rapidly. Internet access enables SMEs to have advanced communication capabilities such as email, web browsing and launching a website. These facilities will be extended with the availability of technical applications in EIS like web services, SaaS, SOA and etc. However, the developments in EIS for SMEs must concurrently consider the level of IT sophistication and inherent characteristics of SMEs.

While ICT can benefit SMEs in multiple ways, SMEs have to identify their own obstruct in EIS adoption, considering their own business priorities and strategies. The major constraints being identified are such are the level of initial

investment, organizational culture, readiness, top management support, relative advantage, complexity, compatibility, the level of external IT support, economic and economic growth, and competitive pressure.

The willingness of SMEs to integrate e-business practices depends on how much it can directly improve their core business and how much the potential benefits outweigh the definite costs. By recognizing these differences and focusing their efforts on removing the constraints, the government and related institutes can play an important role in encouraging SMEs to become more effective users of EIS. This can have wider impact on national economies since SMEs are the engines of economic growth.

A strong focus on SME sector has been paid in developing Sri Lanka as a professional service hub (Budget Report 2014). Therefore it is an essential need that relevant government institutions, R&D firms and Universities move closer to SMEs for them to access new knowledge, information and investment possibilities, where EIS would bring immense benefits to SMEs.

ACKNOWLEDGMENT

I appreciate contribution of all the small and medium scale companies in the survey, specially the case study companies, Western Infirmary Hospital, NaturalCocos Medium (Pvt.) Ltd, 3S Fabrications (Pvt.) Ltd., and Hotel Ranweli.

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