

# Factors Influence on Usage of Information Systems in Small and Medium Sized Enterprises in Ambagamuwa Secretariat Division in Sri Lanka

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**Abstract-** Small and Medium Sized Enterprises (SMEs) do pivotal role in economy of a country. SMEs adapt to change business environments to overcome challenges faster than larger enterprises. The use of information systems (ISs) is very important factor to adapt in changing business environment. The majority of SMEs in Sri Lanka do not use ISs due to various reasons. Therefore, objective of this study is to identify factors influence on usage of ISs in SMEs. The research model was developed using independent variables of Manager Characteristics, Firm Characteristics, Cost, Infrastructure, External Pressure, Legal & Regulations and dependent variable of Use of ISs in SMEs. The administrative questionnaire was developed and data were collected from 100 SMEs in Ambagamuwa Secretariat Division in Sri Lanka using purposive sampling. The results revealed that Manager Characteristics, Firm Characteristics, Legal & Regulation and Cost were statistically significant on influence to use of ISs by SMEs while the Infrastructure Facilities and External Pressure were not statistically significant. SMEs have to be enlightened the advantages of use of ISs. The cost of technology has to be reduced. Further, the government has to consider the legal and regulation factors to influence the use of ISs by SMEs in Sri Lanka.

**Key Words-** Small and Medium Sized Enterprises, Manager Characteristics, Firm Characteristics, Legal & Regulation, Cost

## 1. Background of the Study

SMEs are seen as critical components in the economic growth of developing countries because they are a major source of income, promote entrepreneurship and provide employment. For this reason, considerable attention is paid to positioning SMEs to capture emerging business opportunities that have been created by the emergence of knowledge-based societies (Nandan, 2012). SMEs are considered key agents of social and economic growth and they are increasingly becoming the most vital part of the economy since they play a key role in fostering growth, creating jobs and reducing poverty (Namani, 2009).

ISs support the decision-making process of SMEs. ISs can provide a strategic role through using modern information

technology to assist in the creation and growth of creative and unique products to SMEs that are hard to emulate. Activating the strategic role of ISs are important for providing organizational and technical requirements for information requirement of strategic information planning as an important resource to provide hardware and sophisticated systems ready for such strategic planning, like decision support systems (Zafar, Almaleh, Alshahri, Alqahtani, & Alqahtani, 2015).

SMEs adapt to the changing business environment and innovate to overcome challenges faster than larger enterprises, while being quick to change directions if the economic conditions change. However, it is difficult to retain these capabilities more and more without the adoption of Information and Communications Technologies (ICT) to support their business processes. It has been often said that ICT empower SMEs to overcome the competitive disadvantages that they face due to small size, limited resources, geographical locations and access to market (Bose, 2011).

In spite of the potential benefits of ICT, found that the adoption and use of these technologies have been challenging and slow (Bose, 2011). The study of Munasinghe (2015) emphasize that use of ISs are not success in every context due to various reasons. Further, the study stated that the reasons of use of ISs are not clear due to various reasons. More, Munasinghe & Munasinghe (2015) mentioned that the growth of SMEs with the technology is in Sri Lankan context unclear. Therefore, knowing the reasons of not using ISs by SMEs are important for an economy of a country and hence the objective of the study is to find out the factors influence on usage of ISs in SMEs in Ambagamuwa Secretariat Division in Sri Lanka.

Next section of the study reviews the literature relating to the reasons of using ISs by organizations. Then it describes the methodology, which was used to do the study. Then provides the results of data analysis in detail and final section conclude the study along with the implications of the study by providing avenues for the future research.

## II. Literature Review

The study of Jayasinghe & Wijayanayake (2013) mentioned that there is no universal definition for SMEs. SMEs definition can differ among different countries as well as within the country.

There are mainly three criteria used to define SMEs that is Number of employees, Annual turnover and Asset value. Based on the research study of the Munasinghe and Munasinghe (2015) there were various kind of terms for address SMEs. They were rural enterprises, micro enterprise, Small and medium industries, small and medium activities cottage and small-scale industries etc. SMEs defined as variation of ways by several countries, various government agency, institutes and non-governmental organization (NGO) using different parameters; such as amount of capital invested, number of persons employed, amount of turnover, nature of business etc.

The World Bank define enterprise size in Sri Lanka based on the number of employees: those with fewer than 49 employees are small; those with 50-99 employees are medium sized; and those with more than 100 employees are large. A more recent World Bank survey on Sri Lanka records approximately one million people working in the manufacturing sector while the Survey of Industries finds around 400,000 working in establishments employing 25 or more workers. These numbers suggest that SMEs contribute substantially to employment and income generation (Kapurubandara & Lawson, 2006).

ICT has brought about changes in the way businesses are conducted among SMEs as they play a major role in storing, retrieving, processing and disseminating information. ICT tools can significantly assist SMEs by supplying the required infrastructure, which is necessary for providing appropriate types of information at the right time (Olise, Anigbogu, Edoko, & Okoli, 2014). Factors related to the CEO's knowledge of ICT, innovativeness, experience and active participation in the implementation of significant systems in the firm. The factors identified for use of ISs were separated into two main categories: owner/manager characteristics, with the addition of return on investment as an influencing factor (Akkeren & Cavaye, 1999). Thong (1995) examined 166 small businesses that adopted ICT and found that managers who are highly innovative and have a positive attitude toward ICT together with a skilled ICT background are more likely to be successful in adopting ICT. In addition, the study describes two main categories of factors influencing ICT adoption in small businesses. They were individual characteristics (CEO innovativeness, attitudes towards adoption of ICT and ICT knowledge) and organizational characteristics (business size, competitiveness of environment, information intensity).

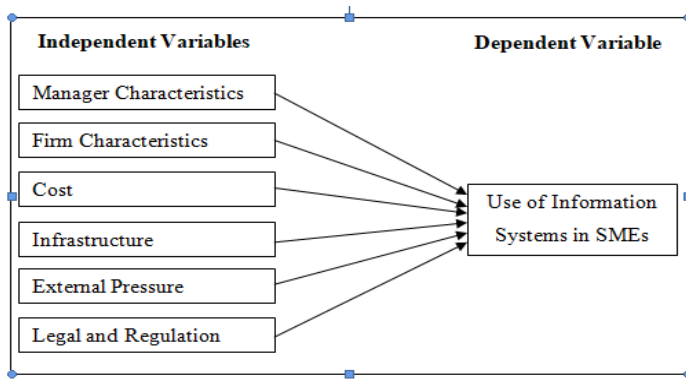
According Akkeren & Cavaye (1999) to financial issues were vitally important to owner/managers and often drive technology adoption in small firms. An innovative small business owner may recognize all the benefits to his firm in adopting ICT in terms of both a short or long-term investment. Bose (2011) highlighted of his study financial commitment includes both direct and indirect costs were important for ISs usage. Direct costs include initial cost of software and hardware, the cost of training personnel and maintaining the system. The indirect costs can have longer impacts and are often unforeseen by owner/managers of small businesses due to lack of experience with enterprise IT project.

The study of Ladokun, Osunwole & Olaoye (2013) revealed that infrastructure was one of the factors that inhibit ICT adoption by SMEs. Thong (1999) mentioned that Small businesses typically have less slack resources with which to absorb the shocks of an unsuccessful investment in ISs adoption. According to Kapurubandara & Lawson (2006) Lack of telecommunication infrastructure includes poor internet connectivity, lack of fixed telephone lines for end user dial-up access and the underdeveloped state of Internet Service Providers were the factors that hinder to adopt ICT in SMEs in developing countries. External pressure like pressure from business trading partners is one of the important predictor that has strong influence on adoption of ICT. Lacking of pressure from their trading partners, the business owner may perceived the technology as a waste of resources (Thong, 1995). Environmental factors include markets, competitive pressures, government rules and regulations, external ICT advice, and pressure from suppliers, vendors, partners and customers make reasons not to adopt ISs by SMEs. The adoption and utilization of ICT increases if trading partners and customers use the new technology (Elbeltagi & Elsetouhi, 2013).

According to Ladokun, Osunwole & Olaoye (2013) government should enabling environment for SMEs to integrate ICT into their operations in order for them to access global markets. According to Namani (2003) the commitment of the government is reflected in its steadily increasing investment in information technology. The government should be involved in providing environment to support and help SMEs to better use of information technology and increase the countries competitiveness, productivity and growth through investment in information technology, e-business and new business models.

Alam and Noor (2009) examined the relationship between ICT adoption and its five factors, which were perceived benefits, perceived cost, ICT knowledge, external pressure and government support. According to Kapurubandara & Lawson (2006) revealed that the SMEs were hesitant to invest probably due to fear of changing policies to suit changes of government. The study of Munasinghe (2015) highlighted that the factors behind the use of ISs were information quality, system quality and user quality that are factors of ISs.

Based on the above literature review the study identified the factors that influences to use ISs were Owner/Manager Characteristics, Firms' Characteristics, Cost, Infrastructure, External Pressure and Legal & Regulations. Further, the study focuses the following research model with the six hypotheses (H1 to H6).



- H1:** There is a positive effect of Manager Characteristics to Use of ISs by SMEs in Ambagamuwa divisional Secretariat area.
- H2:** There is a positive effect of Firms’ Characteristics to Use of ISs by SMEs in Ambagamuwa divisional Secretariat area.
- H3:** There is a negative effect of Cost to Use of ISs by SMEs in Ambagamuwa divisional Secretariat area
- H4:** There is a positive effect of Infrastructure to Use of ISs by SMEs in Ambagamuwa divisional Secretariat area
- H5:** There is a positive effect of External Pressure to Use of ISs by SMEs in Ambagamuwa divisional Secretariat area
- H6:** There is a negative effect of Legal & Regulation to Use of ISs by SMEs in Ambagamuwa divisional Secretariat area

### III. Methodology

The researcher first read the relevant literature regarding ISs usage of SMEs and found that many SMEs do not use ISs at a satisfactory level. Then, the research model was developed considering empirical support of previous research studies and six hypotheses were formulated accordingly. A comprehensive questionnaire was developed getting help from using previous research studies and data were collected using purposive sampling method from SMEs in Ambagamuwa secretariat division. SMEs were categorized into food and beverage, textiles and foot wares, furniture and statues, services and others. Sample size was selected as 100 SMEs. Researcher selected 47 food and beverage SMEs, 20 textiles and foot ware SMEs, 15 furniture and statues and 9 Services and 9 other SMEs.

The questionnaire consists of two sections to address the research objectives of the study. Part A consists of questions regarding demographic characteristics of position of the respondent, type of organization, type of the business, and number of employees, how long organization was established. Part B consists of questions relevant to the research variables as shown in the research framework. Pearson correlation analysis and multiple regression analysis were used to identify relationship between independent and dependent variables and to test the hypotheses. Demographic factors were analyzed using descriptive analysis. A statistical tool such as reliability test (Cronbach’s Alpha value) was used to measure the reliability.

### IV. Results and Discussion

There were six independent variables were used to investigate the dependent variable of SMEs. Table 1 demonstrates Cronbach’s Alpha values of the research variables with the number of questions. All the alpha values are above seven (07) and ranging from 0.720 to 0.847. It indicates that the results of interpretations of the variables were reliable. The highest value is 0.847 for the independent variable Cost for the ISs usage and lowest value is 0.720 for Firm’s Characteristics of SMEs.

**Table 1 - Cronbach's Alpha Values**

Variables	Cronbach’s Alpha	No. of Items
Manager characteristics	0.831	5
Firm characteristics	0.720	7
Cost	0.847	4
Infrastructure	0.744	3
External Pressure	0.782	3
Legal & Regulations	0.840	3
Usage of ISs	0.748	4

The Table 2 describes descriptive statistics of responses of respondents related with independent and dependent variables of the study. Almost all the mean values of the research variables were relatively high and above three (3). The mean values of the variables were ranging from 3.863 to 4.733; the standard deviation values are ranging from 0.417 to 0.546. Maximum mean was having the External Pressure to use of ISs (4.733) and lowest mean value is having Firm Characteristics (3.863) to use of ISs by SMEs.

**Table 2 - Descriptive Statistics for Research Variables**

Variables	Mean	Std. Deviation
Manager Characteristics	4.632	0.444
Firm Characteristics	3.863	0.459
Cost	4.715	0.417
Infrastructure	4.240	0.536
External Pressure	4.733	0.418
Legal & Regulation	4.467	0.447
Usage of ISs	4.245	0.546

### Correlation and Regression Analysis of the Research Variables

According to Table 3, Pearson correlation values are 0.236, 0.314, -0.078, 0.013, 0.182, and -0.228 for the constructs Manager Characteristics, Firm Characteristics, Cost, Infrastructure, External Pressure, Legal & Regulation with the usage of ISs and significant values are 0.018, 0.001, 0.038, 0.900, 0.070 and 0.022 in respectively. The results represents that only the constructs Manager Characteristics, Firm Characteristics, Cost, and Legal & Regulation were statistically significant with use of ISs by SMEs in Ambagamuwa secretariat division in Sri Lanka. Therefore according to the Pearson

correlation values the hypothesis H1, H2, H3, H6 were accepted and H4 and H5 were rejected.

**Table 3 - Correlation Analysis (Pearson Correlation Value, (Sig. value))**

Variable	MC	FC	C	I	EP	LR	UISSs
Manager Characteristics (MC)	1						
Firm Characteristics (FC)	-0.110 (0.276)	1					
Cost (C)	0.491** (0.000)	-.069 (0.498)	1				
Infrastructure (I)	0.140 (0.165)	0.090 (0.373)	0.245* (0.014)	1			
External Pressure (EP)	0.054 (0.596)	0.288* (0.004)	0.033 (0.746)	-0.027 (0.790)	1		
Legal & Regulation (LR)	-0.069 (0.494)	-0.172 (0.086)	-0.205* (0.041)	-0.219* (0.028)	-0.120 (0.234)	1	
Usage of ISs (UISSs)	0.236* (0.018)	0.314** (0.001)	-0.078* (0.038)	0.013 (0.900)	0.182 (0.070)	-0.228* (0.022)	1

\*\* Correlation is significant at the 0.01 level (2-tailed)  
\* Correlation is significant at the 0.05 level (2-tailed)

Table 4 display the output of regression analysis. Hence, Adjusted R-Square value is 0.466, which means 46.6% of the variation in influence to use of information systems can be explained by the constructs of Manager Characteristics, Firm Characteristics, Cost, Infrastructure, External Pressure, and Legal & Regulation. The Durbin-Watson statistic of 1.585 is not too far from 2. The p-value from the ANOVA table is 0.000 which less than 0.001, which means that at least one of the six variables: Manager Characteristics, Firm Characteristics, Cost, Infrastructure, External Pressure, Legal & Regulation can be used to model use of ISs by SMEs. The VIF values are below 5, indicating that there is no problem of multicollinearity.

**Table 4 - Regression Analysis**

Variable	B	Sig	VIF
(Constant)	3.413	0.005	
Manager Characteristics (MC)	.490	.000	1.339
Firm Characteristics (FC)	.341	.003	1.152
Cost (C)	-.378	.008	1.419
Infrastructure (I)	-.044	.648	1.115
External Pressure (EP)	.079	.519	1.113
Legal & Regulation (LR)	-.260	.026	1.120

**Adjusted R Square** = 0.466, **ANOVA Sig.** = 0.000, **F** = 5.615, **Durbin-Watson** = 1.585  
**Predictors:** (Constant),MC, FC, C, I, EP, LR **Dependent Variable:** UISS

According to Table 5, it is concluded that the hypotheses H1, H2, H3 and H6 are supported considering the Correlation and Regression Analysis. The hypothesis H4 and H5 are not

supported based on the correlation analysis and regression analysis.

**Table 5 - Summary of hypotheses testin**

Hypotheses	Correlation Analysis	Regression Analysis
H1	Supported	Supported
H2	Supported	Supported
H3	Supported	Supported
H4	Not Supported	Not Supported
H5	Not Supported	Not Supported
H6	Supported	Supported

## V. Conclusion and Recommendation

Role of SMEs is very important for economy of a country. Use of ISs improves the functions of SMEs in competitive and changing business environment. Most of SMEs do not use ISs at satisfactory level due to various reasons. Therefore, the study focuses the factors behind the influence to use of ISs in Ambagamuwa secretariat division in Sri Lanka.

The identified factors of the study to influence to use of ISs by SMEs were Manager Characteristics, Firm Characteristics, Cost, Infrastructures, External Pressure, Legal and Regulations. The research model was developed using above factors as independent variables and Use of ISs as dependent variable. Using an administrative questionnaire data were collected using purposive sampling. Among the factors, only Manager Characteristics, Firm Characteristics, Cost, Legal and Regulations were statistically significant to use of ISs by SMEs



in Ambagamuwa secretariat division. SMEs have to be enlightened the advantages of use of ISs and the same time the cost for technology is to be used in SMEs has to be reduced by the relevant stakeholders. The government has to consider the legal and regulation factors to influence the use of ISs by SMEs in Sri Lanka.

According to the analysis, only a 46% explain the variances of independent variables by influence to use of ISs in Ambagamuwa secretariat division. This implies that more research variables such as perceived usefulness, perceived ease of use, information quality, system quality and user quality etc. have to be considered to identify the factors, which influence to use of ISs, by SMEs. Further, more samples have to be considered which are covering all secretariats divisional in Sri Lanka to generalize the results in local context.

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