

Success of Information Systems usage in Government Organizations in the North Central Province in Sri Lanka

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Abstract

Information systems play a vital role in today's business world. Literature reveals that information systems are not success in every context due to various reasons. Although several conceptual and empirical studies have addressed these issues, their findings are inconclusive. Studies that have investigated the use of success of information systems in Sri Lankan context are rare and very limited. Therefore, this study aims to identify the factors that effect on success of information system usage in the government sector organizations in Sri Lanka. A sample of 96 information system users in government organizations in the North Central Province of Sri Lanka was selected using purposive sampling. A questionnaire survey was administered in the data collection. Data analysis consists of descriptive statistics, correlation analysis and multiple linear regression analysis. The results reveal that information quality, system quality and user quality have significance effects to the effective use of information systems. The study stresses the necessity of improving the quality of information in the information systems to enhance the ease of use, reliability and security. Moreover, government should employ well qualified staff and trained them regularly to ensure the quality of service provided through the information systems.

Keywords: *information quality, user quality, success of information systems, system quality*

Background

Today, information is considered as a main asset of business organizations. Thus, information systems generate required information for day to day operations and the growth of any organizations. According to Pushpakumara et al. (2014) Information Systems accelerate routine tasks while increasing accuracy and it facilitate & accelerate the decision making process. The concepts of Information and Communication Technology (ICT) are used as a tool to generate and disseminate required information in today's world; Badamas (2014) emphasized that no business organization can survive without information systems in global business environment. Furthermore, the study indicated that the Information System as an asset rather than cost to the organization. Torkestani and Mazloomi (2014) highlighted that information systems were the great solutions for issues and challenges in the business environment.

The government organizations of Sri Lanka are implementing different kind of information systems. The consultants of development of information system projects know the critical success and failure factors of those projects in the aspect of technical factors such as user requirement, project management and resource allocation for the development of the information systems. After implementing such systems, effective use of the systems

are questionable. Therefore, objective of this study is to identify the factors that effect on the success of use of information systems in government sector organizations in Sri Lanka.

Many researchers argue that investment on information systems would increase affectedly (Badamas, 2014; Torkestani&Mazloomi, 2014). The Government sector organizations in Sri Lanka investments in information and communication technology sector have increased dramatically during the last two decades and also, Government plans to expand the information systems and Information and communication technology sector to strengthen economy of the country and to develop the rural areas and to improve the quality of services provided to the general public by the government. Even though the huge investments for the information systems on government organizations, the quality and popularity is still remains unsatisfactory among citizens. Therefore, this study examines of use of the success of information systems in the context of public sector with the special reference to the North Central Province in Sri Lanka.

Next section of this study; reviews the literature that relates the present inquiry by following the problem of the study. Then, it describes materials and methods used in study including data collection and data analysis procedures. 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.

Problem statement

The investments of government sector organization in information systems are relatively lesser than that of private sector organizations because most of its automating activities are on accounting matters on government sector. Information Systems of the private sector consider overall activities and some of them are really enterprise resource planning systems and it consequences higher quality of such systems. A study of Pushpakumara et al. (2014) mentioned that organizations in local context motivate their subordinates to proper use of information systems and most of them mainly considered only a financial activity and those are ready-made system provided by the central government of Sri Lanka. One example is SIGAS accounting package that can be identified as one of such centrally implemented information systems. Such systems have not considered individual requirements of stake holders. Employees have negative attitudes due to compatibility issues with their daily activities and that consequence to maintain manual system as well in parallel to the automated information system. The study further emphasized that some systems have been developed by employees voluntarily and many organizations used spreadsheets for their financial activities in the organizations. This means that well qualified people would not engaged in developing and using such systems due to less payments and self-motivation in the public sector organizations. Finally, the research emphasized that success of use of information systems is blur because they rapidly implements along with e-government initiatives but, absence of studies in the context of the problem. The critical success and failure factors discussed in the theory as the factors that affect to the implementation of information systems might not be only the factors. Therefore, this research study examines “What are the factors critically affecting the success of use of information systems of government organizations in Sri Lanka?”

Literature Review

The changing entity of the business organization is the rapid advancement of their Information and Communication Technology and adoption of the information systems. According to the Loudon and Loudon (2009) information technology and information systems have revolutionized the business organizations becoming the largest components of capital investment of their total investment. Further, They mentioned that “information systems are changing businesses and the visible results of them include the increasing use of mobile phones and wireless devices, a massive shift towards online news and information, booming e-commerce and Internet advertising and new federal security and accounting laws that addressed issues raised by the exponential growth of digital information”. More, information systems are defined as “a set of interrelated components that collect or retrieve, process, store and distribute information to support decision making and control in an organization” and further the information system as is “an organized combination of people, hardware, software, communication networks, data resources, and policies and procedures.

Success of Information Systems in business organization depends on many reasons and among the reasons system quality, information quality and user quality of the information systems have significantly impact to effective use of information systems. Badamas (2014) stated that end users especially top management support to efficient use of information systems and information system quality mainly affect to dissatisfaction of them. Petter, DeLone, & McLean (2008) and Torkestani & Mazloomi (2014) have considered the success of information system dimension as system quality and information quality. Further, the study states that the systems quality of information systems’ as the desirable characteristics such as ease of use, system flexibility, system reliability, and ease of learning, as well as system features of intuitiveness, sophistication, flexibility, and response times. Information quality is defined as the desirable characteristics of the system outputs such as quality of reports with the relevance, understandability, accuracy, conciseness, completeness, currency, timeliness, and usability. Petter et al. (2008) have found that information quality was neglected by most of studies even though it was very vital for success of information systems. Qteishat (2014) argues that information quality in information systems impacts the staff satisfaction and its benefits for the organization success.

Pushpakumara et al. (2014) studied information system success in Sri Lanka focusing three determinants systems quality, service quality and user quality. System quality refers as to easiness of the system for the potential user; service quality refers to the different services available within the information systems and user quality refers to the user readiness for using the information systems. Petter et al. (2008) defined system use as the degree and manner in which staff and customers utilize the capabilities of an information system with amount of use, frequency of use, nature of use, appropriateness of use, extent of use, and purpose of use. Also, quality of user characteristics is a measurement of success in information systems; that is ignored by most studies. Hussein et al. (2007) examined the relationship between system quality, information quality, perceived usefulness and information system satisfaction and found positive relationships between the variables of the use of information systems.

The above literature suggests that information quality, system quality and user quality promote success of use of information systems. Thus, the following conceptual framework is proposed for the present study.

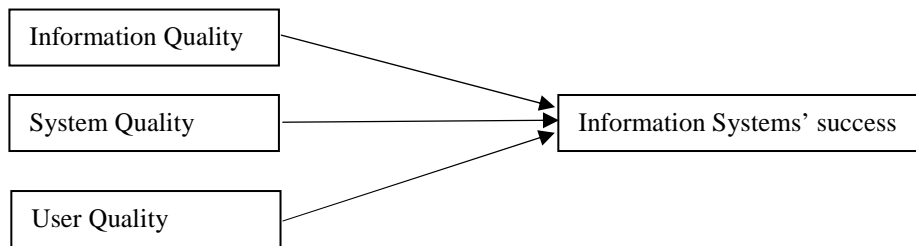


Figure 1: Conceptual Framework

Material and Methods

The study uses a quantitative approach to examine the factors that effect on success of use of information systems which are used in government organizations in the North-Central Province in Sri Lanka. After a literature review found that most of the business organizations spend considerable amount of time and money to develop information systems to smooth handling of their activities and gain the competitive business advantages. Therefore, the evaluation of effective use of information systems is timely important matter. To evaluate the use of success of information systems the researcher designed a structured questionnaire and employed in data collection. The purpose of the questionnaire is to examine and obtaining necessary and reliable information from the respondents in the public sector organizations. Empirical studies in similar context were employed in identifying key constructs for the research variables and constructing the questionnaire and each question of the questionnaire were weighted according to importance to make data analyzing process easier. The questionnaire consists of two major parts out of which the first part is reserved for collecting the demographics of the respondents and the second part for the gathering of data relating to three independent research variables of information quality, system quality and user quality relevant to use of information systems in government organizations. All the questions relating to the research variables were set in five-point Likert scale and the demographics data were collected through close ended questions.

The population of the study is the information system users who work in government sector organization in the North Central Province. A sample of 96 respondents was selected from the target group using the purposive sampling. To ensure the reliability and the validity of the research instrument, it was piloted and adjusted accordingly with correct wording and logical ordering of the questions.

In the data analysis, descriptive statistics, Pearson correlation coefficient and multiple linear regression analysis are used to identify the relationship between independent and dependent variables. Finally, conclude the study by giving conclusion and recommendation based on significance between the dependent variable of information system successes with the independent variables information quality, system quality and user quality. To ensure the internal consistency of the constructs that were used to measure study variables, reliability test was performed.

Results and discussion

For the construct of variables information quality and system quality were considered five questions for each and Cronbach's Alpha values were 0.747 and 0.753 respectively. Further, for the user quality only four questions were used and for the factor success of information systems eight questions were measured and Cronbach's Alpha values were 0.780 and 0.888 respectively. Therefore, all constructs recorded Cronbach's Alpha values well over 0.7 which is considered as the general cutoff in this type of study. Thus, reliability of each construct is accepted for the present study.

Table 1: Descriptive statistics and results of correlation analysis

	Mean	A	B	C	D
A. Information Quality	4.304	1	0.386 ^{**} ,0.004	0.585 ^{**} ,0.000	0.668 ^{**} ,0.000
B. System Quality	3.922		1	0.817 ^{**} ,0.000	0.333 ^{**} ,0.002
C. User Quality	3.701			1	0.291 [*] ,0.025
D. Success of information systems use	4.273				1

** . Correlation is significant at the 0.01 level (1-tailed).

*. Correlation is significant at the 0.05 level (1-tailed).

The sample includes 96 information systems users and majority of them were female (83.3%). Table 1 shows descriptive statistics and results of correlation analysis. Mean values reported in the table indicate that the respondents perceived information quality, system quality and user quality are in a good position in addition to the better success of use of information systems.

The correlation results reveal that information quality is positively correlated with success of use of information systems ($r=0.67, p<0.01$). The results further suggest that there is a positive and significance relationship between system quality and success of use of information systems ($r=0.33, p<0.01$). The user quality is also positively corrected with success of use of information systems ($r=0.291, p<0.05$).

Table 2: Results of regression analysis

Variable	Coefficients	Std. Error	t value	P
(Constant)	0.563	0.359	1.571	0.120
Information Quality	0.901	0.093	9.721	0.000
System Quality	0.406	0.094	4.338	0.000
User Quality	0.477	0.104	4.595	0.000
R² = 0.553	F = 37.935	Sig F = 0.000		

According to the Table 2; results of regression analysis F value is 37.935 and p value of tests is 0.000. It reveals that selected independent variable use of information systems success of the government sector of North Central Province is linearly related with dependent variables information quality, system quality & user quality or since the p-value from the ANOVA table is less than 0.001, which means that at least one of the three variables: information quality, system and user quality can be used to model success of information systems in government sector.

Regression coefficient of information quality indicates that there is a positive effect of information quality on the success of use of information systems ($\beta=0.901$, $p=0.01$). Regression coefficient of 0.406 also signifies that system quality has a positive effect on success of use of information systems ($p<0.01$). Results further suggest that success of use of information systems is also influenced by user quality ($\beta=0.477$, $p<0.01$). Thus, every unit increase in information quality, system quality and user quality of information systems is expected to increase success of information systems with the magnitude 0.901, 0.406 & 0.477 respectively when other two variables (variables which magnitudes are not increased) are unchanged.

Conclusion

Information systems are very vital asset to the business organizations. Therefore, they spent much money to develop and use information systems. The government sector of Sri Lanka has introduced information systems for smooth handling of routine task of some sector services under the e-government concept. According to the study only three independent variables such as information quality, system quality & user quality were considered with the dependent variable use of information system success. The sample was 96 information system users of the government sector organizations. Results confirmed and validated the finding of the previous research studies. The results indicate that information quality, system quality and user quality are important factors in promoting the success of use of information systems in the North Central Province of Sri Lanka. These findings stress the necessity of ensuring the information quality, system quality and user quality in providing services through information systems.

To improve the user quality of information systems; the government sector should employ well qualified staff to use their information systems and it would consequence to provide better service for the customers. In addition, information system users who work in government services should be trained frequently to update their capabilities. Further, government sector should implement the information systems after analyzing the stake holders' requirements very clearly and the system should be available for their users all the relevant schedules and provide correct updated information to improve information quality and system quality of information systems.

The study considered only three important constructs regarding success of use information systems and according to the literature there were some other factors may exist. Therefore, future researchers would do more research studies regarding the use of success of information systems using more variables. This study was conducted considering only the government sector information system users in the North Central Province in Sri Lanka. Therefore, more research works can be conducted the same study for larger samples in different context and then could be generalized the recommendations.

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