Determinants of ICT Adoption and Usage: Evidence from Rural-Based SMEs in Nuwara Eliya District, Sri Lanka

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Abstract

The phenomenon of the Internet has helped businesses and organizations to understand their existing business application and practices as well as adopt new methods of working, both for existing and potential customers among small and medium-sized enterprises (SMEs). This has enhanced firms' ability to gain a competitive advantage not only locally, but also internationally. This study examined the factors influencing ICT adoption, as well as its usage among SMEs in the Rural sector in Sri Lanka. The study took into consideration innovation diffusion theory (IDT) and characteristics influencing the adoption and usage of ICT among SMEs. in Sri Lankan context there is little empirical research conducted in rural sector SMEs. both primary and secondary data were used. the primary data was collected from 50 SMEs in the Nuwara Eliya district. The findings of this study indicate that the cost of using ICT discourages SMEs in the Nuwara Eliya District from adopting and using those facilities in their businesses. While, the adoption and use of ICT among SMEs in the Nuwara Eliya District is promoted and encouraged by SME owners and managers' ICT knowledge, available ICT infrastructure, and perceived benefits of ICT infrastructure, according to this study. The theoretical implications of this study are the contribution to the literature on ICT adoption and diffusion. and also, practical implications apply to SMEs, training institutions, ICT vendors, and consultants.

Keywords: *Information and communication technology, Rural-based, SMEs*

1. Introduction

Small businesses make considerable commitments to national economics and are assessed to represent 80% of worldwide financial development (Julta, Bodorik, & Dhaliwal, 2002). And therefore, small and medium enterprises (SMEs) are identified as the foundation of both developing and developed countries ' economies (Vijayakumar, 2013). SMEs are the key source of job creation, productivity, and development of most countries (Rogers, 2003).

The contribution of SMEs to the Sri Lankan economy is also substantial (Malawige, and Nanayakkara, 2014). Therefore, the SME sector has been designated as a key strategic sector in the Sri Lankan economy, with the potential to foster inclusive

economic growth, regional development, job creation, and poverty reduction. Small and medium-sized firms are considered the backbone of the Sri Lankan economy by the government since they account for more than 75 percent of all businesses, supply 45 percent of employment, and contribute 52 percent of the country's Gross Domestic Production (Gunawardana, 2020). The agricultural sector is one of the primary areas that is fueled by SMEs in Sri Lanka. In the agricultural sector, SMEs account for over 90% of the total enterprises present in it. According to the records of the Department of Census and Statistics in the year of 2013/2014, SME establishments in Sri Lanka accounted for up to 1.017 million providing livelihood to nearly 2.225 million individuals in the non-agricultural sector.

Definition of SMEs

In general terms, all micro, small, and medium businesses are referred to as SMEs. Since SMEs are defined differently in different nations, the definitions of SMEs vary by country. The total number of employees, annual turnover, and total investment are some of the most widely utilized yardsticks in defining SMEs. The SME policy framework in Sri Lanka identifies SMEs based on the number of employees and yearly turnover (Table 01).

Table 1: Defining SMEs in Sri Lanka

Size / Sector	Criteria	Medium	Small	Micro
Manufacturing	Annual Turnover	Rs.Mn.251-750	Rs.mn.16-250	Less than Rs.mn.15
	No.of Employees	51-300	11-50	Less than 10
Service	Annual Turnover	Rs.Mn.251-750	Rs.mn.16-250	Less than Rs.mn.15
	No.of Employees	51-200	11-50	Less than 10

Source: National Policy Framework for SME Development, Ministry of Industry and Commerce, (2016)

According to Table 01, In Sri Lanka, a business is considered an SME if its number of employees does not exceed 300 individuals and if its revenue does not exceed 750 million LKR.

ICT adoption in the SMEs

Sri Lankan SMEs are mostly rural-based. At the same time, because of various reasons the adoption and the usage of ICT seem to be comparatively very low among the SMEs. ICT is having a significant impact on today's business environment, and its use is rapidly transforming worldwide labor, production, and commercial procedures between businesses and customers. Therefore, different scholars underline that ICT should be used by SMEs to gain a competitive advantage, and outperform their competitors.

Without ICT, no organization can thrive in today's competitive world (Spanos, Prastacos, and Poulymenakou, 2002). It is an electronic and interactive bridge between businesses and their stakeholders, including customers and material suppliers. Among other modern ICTs, mobile phones, provide a tool for SME owners to effectively communicate knowledge and information about products, markets, and technology, allowing them to apply the knowledge directly to increase their output and gain easier market access (Chhachhar et al., 2014).

Corrales and Westhoff (2006) defined ICT adoption as "the choice an individual makes to accept or reject a particular innovation and the extent to which that innovation is integrated into the appropriate context." A substantial amount of research has been done in the previous decades to determine factors that influence ICT adoption (Nazrul Islam, 2016; Fahad A. et al., 2017), but very little study has been done on ICT adoption in Small and Medium Enterprises. The majority of large businesses are concerned about the use of new technologies to support their operations. Despite the fact that large corporations account for the majority of ICT adoption, SMEs are increasingly incorporating technology into their operations.

On the other hand, during the last three decades, the use of ICT in SMEs has increased substantially, and it now plays a critical role in today's knowledge-based economy. It is used in a wide range of domains in a variety of small and medium scale enterprises. Email, phones, mobile devices, fax machines, and video communication have traditionally been included in ICT components, but the list continues to grow as technology advances and disruptive technology becomes more widely available in the huge international market.

The explosion in the use of information and communication technologies has important ramifications for economic and social development, and it has pervaded every element of human life (Shanker, 2008). ICT can help many organizations enhance, coordinate, and regulate their operations, as well as boost the use of management systems like customer relationship management (CRM). As a result, information and communication technology is seen as a critical tool for the efficient management of any firm and the delivery of services to its clients (Spanos, Prastacos, and Poulymenakou, 2002).

Understanding the importance and the challenges faced by SMEs in the adoption of ICT, the Ministry of Industry and Commerce has developed a national policy framework for SME development, to provide improved access to appropriate and affordable modern technology (NPFSD, 2016). This policy framework recommended several important strategies, including the creation of a strong network, platform, and relationship between SMEs and technology providers, strengthening technology transfer programs, expanding the reach of technology demonstration platforms and centers in the industrial park, and holding special technology showcase and dissemination exhibitions, promoting and conducting special technology transfer and diffusion programs to encourage SMEs to adopt modern technology.

Statement of the Problem

The background of the study highlighted several advantages that can be derived from adopting ICT in business in the prevailing hyper-competitive business environment. ICT can be utilized to increase agility in a variety of business areas, including service delivery, customer service, expanding product lines, customer access, and business continuity (Riyami and Fathi, 2013). Despite the numerous benefits revealed from the use of ICT to improve SMEs' performance, ICT adoption in rural-based SMEs is still relatively low when compared to large organizations and urban-based SMEs. Therefore, it is critical to investigate what factors influence ICT adoption of rural-based SMEs in order to improve their performances.

Objectives of the Study

This research aims to examine the determinants of ICT adoption and usage among rural-based SMEs to enhance their business performance. The secondary objectives of this study were:

(a) To determine the relationship between the rural-based SME owners' ICT knowledge and their adoption of ICT.

(b) To analyze the relationship between the cost of using ICT facilities and the adoption of ICT by SMEs.

(c) To investigate the relationship between existing ICT infrastructure and the use of ICT among rural-based SMEs.

(d) To determine the relationship between the perceived benefits of ICT and the use of ICT in rural-based SMEs.

Recommendations were also made based on data about how ICT adoption affects rural-based business performance and how it may be improved.

2. Literature Review

The modern situation, business world has been influenced by ICT and the application of ICT among businesses is widespread. ICT is quickly changing global production, work, and business methods and trade and consumption patterns in and between enterprises and consumers (Alam, 2009). Denni (1996) said that every business must bring ICT into their business operation and take advantage of the benefits they offer. As the world economy, continues to move toward increased incorporation as a result of advances in information communications technology, some of the greatest opportunities for small businesses will derive from their ability to participate in the regional and international markets (Alam, 2009).

Nowadays small businesses are increasingly using and adopting ICT due to the advent of personal computers (PCs), cost-effectiveness, and cheaper ICT products. “The use of ICT can improve business competitiveness with the internet providing numerous opportunities for SMEs to compete equally with large corporations.” (Alberto and Fernando, 2007) Fundamentally, SMEs differ from large businesses in that they have

specific computing requirements and technology acceptance patterns. Therefore, in recent decades, the use of ICT by SMEs has sparked a great deal of interest among researchers, governments, and international organizations (Kabongo, and Okpara, 2014). For instance, Husein and his colleagues (2021) tried to figure out what factors influence ICT adoption in Somalia's small-scale agribusinesses. According to their findings, relative advantage, complexity, top management support, and competitive pressure factors all play a role in ICT adoption in Somalian agriculture operations, while ICT prices and vendor support had little bearing on ICT adoption in agricultural businesses. This study suggests that insight and motivation, rather than financial and external support, drive ICT adoption in Somalia.

Agriculture is considered a vehicle for growth in Pakistan, as it is in many developing countries. Fahad et al. (2017) investigated farmer community attitudes of electronic media and the association between several demographic features of respondents and the usage of electronic communication via TV and radio in Khyber Pakhtunkhwa (KPK) of Pakistan. Their findings showed that extension professionals should encourage and teach farmers to use electronic media (TV, radio, hotline, internet, mobile) to learn about innovative agriculture production techniques.

Many organizations rely heavily on ICT solutions to develop and grow their operations (Asgarkhani and Young, 2010). The availability of landline or mobile communications, whichever is cheaper or more convenient for business, allows SME operators to communicate with their suppliers and customers without having to make personal visits. After mastering basic communication skills, the next ICT upgrade is usually a PC with basic software (Irefin, 2012). Irefin (2012) states that "without internet connectivity, SMEs can use PCs for basic word processing, accounting, and other business practices. With the internet, SMEs can use more advanced communication features such as file sharing, website creation, and e-mail. This may be sufficient for most SMEs, especially those in service industries such as tourism and other service industries.

In Anambra State, Nigeria, Moses C. Olise and his team (2014) investigated the factors of ICT adoption for enhanced SME performance. Their research revealed that there is a considerable disparity in SMEs' levels of awareness and ICT facility use trends. The capital basis, turnover, and asset worth of the companies studied all have an impact on ICT adoption. They also found that SME owners' capital input, marital status, and business experience have a favorable and substantial association with their output performance.

Shiels, McIvor, and O'Reilly (2003) looked at how new technologies are introduced and implemented with the goal of establishing integration with business operations. Their findings show that company and industrial sector characteristics influence the extent to which SMEs adopt and use ICTs to support business activities. Alberto and Fernando (2007) aimed to investigate the significance of five factors in ICT adoption in Spain: the environment, company structural characteristics, human capital, competitive strategy, and internal organization. Their findings emphasize the significance of examining each ICT separately, as well as the importance of

institution size, international ownership, and a highly-skilled workforce in ICT adoption. The diffusion of certain parts of ICT within enterprises is also aided by quality control systems and team-based work organization.

Ioannis, Alexandra, Efthymia, and Aggelos (2017) investigated the factors that influence ICT adoption in SMEs. Firms' technological competencies, workforce human capital, and internal organization all play a role in ICT adoption, as evaluated by five indicators: company intentions toward ICT implementation, ICT infrastructure, internet integration, e-sales, and e-procurement. They came to the conclusion that cooperation in innovation and R&D, well-educated and skilled staff, decentralized decision-making, and visionary leadership all help SMEs adopt new technology.

Based on these scholarly works the following conceptual framework was designed.

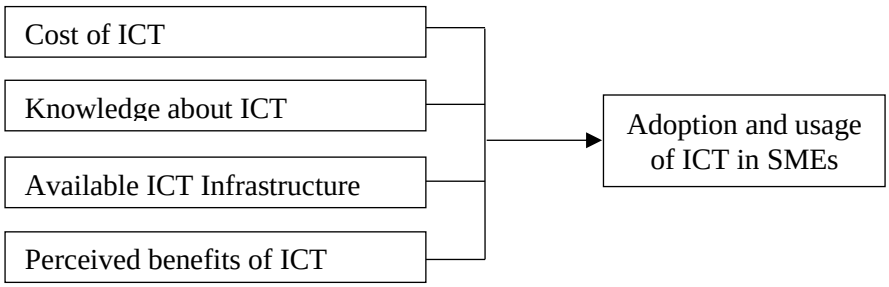

Figure 1: Conceptual Framework

Research Hypotheses

Following hypotheses were analyzed, studied, and interpreted in this study.

H_1: The cost of using ICT discourages the adoption and usage of ICT among SMEs in the Nuwara Eliya District.

H_2: The knowledge of using ICT influences the adoption and usage of ICT among SMEs in the Nuwara Eliya District.

H_3: The available ICT infrastructure promotes the adoption and usage of ICT among SMEs in the Nuwara Eliya District.

H_4: The perceived benefits of ICT infrastructure encourage the adoption and usage of ICT among SMEs in the Nuwara Eliya District.

3. Research Methodology

Diffusion is the process by which an innovation is adopted by members of a certain community. The most frequently cited work related to dissemination is Diffusion of Innovation (IDT) (Rogers, 1995). As Rogers points out, diffusion is not a single all-encompassing theory, but rather several theoretical perspectives that draw on the general concept of diffusion; that is, it is a meta-theory. Four factors influence the adoption of an innovation by organizational members: (1) the innovation itself, (2) the communication channels used to disseminate information about the innovation,

(3) the timing, and (4) the nature of the group to which it is introduced (Rogers, 1995). According to Rogers, there are four main theories related to the diffusion of innovations. They are (1) innovation decision-making theory, (2) individual innovation theory, (3) adoption rate theory, and (4) attribute perception theory. This study focuses on individual innovation theory and perceived attribute theory as they help to understand the relationship between the innovator characteristics and the adopters' categories.

The survey was done through a personal interview with small and medium business owners in Nuwara Eliya, a city in the hill country of the Central Province, Sri Lanka. The target populations of the study were small and medium businesses in the Nuwara Eliya area, albeit the exact number of the population could not be determined due to a lack of a reliable database. As a result, the study's sampling approach was non-probabilistic (convenience sampling). The research was conducted in line with ethical considerations.

A descriptive study with a sample size of 50 SMEs was done, with data obtained using a structured and self-administered questionnaire. The purpose of the study was presented to the owners and managers of the randomly selected SMEs, and only those who consented to give the necessary information were invited to complete the questionnaire. Also, a pilot telephone-based survey was initially conducted leading to 05 filled questionnaires.

The four factors that influence ICT adoption – the cost of using ICT, ICT knowledge, ICT infrastructure availability, and perceived benefits of ICT – were presented as independent variables based on prior research, and the effects of these factors on ICT adoption were explored. A five-point Likert scale was used to assess these factors. The answers ranged from strongly disagree to strongly agree, with 01 indicating strong disagreement and 05 indicating strong agreement. Descriptive analysis, Regression analysis, and Pearson`s correlation analysis were performed with the aid of the Statistical Package for Social Sciences (SPSS *Version 25*), which was used to test the hypotheses of this study.

For this study, the following regression equation was formed.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where:

Y = Dependent Variable (adoption and usage of ICT in SMEs)

β_0 = Intercept, and β_{1-4}= Beta coefficient

X_1 = Cost of ICT, X_2 = Knowledge about ICT, X_3 = Available ICT infrastructure, and X_4 = ICT perceived benefits.

ε = Error term

4. Data Analysis

The research questionnaire contained three sections: Section I was designed to gather information related to the respondents' demographics. It collects data on the individual's and institution's demographics, such as gender, age, educational credentials, business type, experience, and the number of employees. Section B gathered information related to the independent variables (i.e. factors affecting the usage of ICT), and Section C was designed to gauge the ICT adoption and usage of SMEs. Respondents' views of these factors were evaluated using a five-point Likert scale. The responses ranged from strongly disagree to strongly agree, with 01 being strong disagreement and 05 representing strong agreement. Other questions of the survey had pre-determined answer options.

Reliability Analysis

Cronbach's alpha test was performed to measure the reliability coefficient. All the measurements of independent variables had a Cronbach's Alpha value over 0.708, indicating a satisfactory level of reliability. Cronbach's Alpha for ICT adoption measures was estimated to be 0.805, which is considered great for the study.

Table 02: Reliability Test

Variables	Cronbach's Alpha	No of Item
Cost of ICT	0.708	5
Available ICT infrastructure	0.799	5
Knowledge about ICT	0.729	5
Perceived benefits of ICT	0.782	5
Adoption and usage of ICT	0.805	5

Therefore, the reliability of all constructs is 71% and above which means all variables are closely associated and accepted to proceed with the study.

Descriptive Analysis

Descriptive statistics were calculated to identify the basic nature of the research variables and four independent variables were measured using five points Likert scale. These statistics are summarized in Table 03.

Table 03: Descriptive statistics

Variable	Mean	Std. Deviation	Skewness		Kurtosis	
			Statistic	Std.Error	Statistic	Std.Error
Cost of ICT	1.8700	.68557	1.847	.337	3.897	.662
Available ICT infrastructure	3.4600	.58169	-2.307	.337	4.831	.662
Knowledge about ICT	4.1550	.69232	-2.392	.337	6.771	.662
Perceived benefits of ICT	3.8400	.73151	-1.003	.337	1.739	.662
Adoption and usage of ICT	4.0250	.73062	-2.065	.337	5.291	.662

The findings confirm that most of the SME owners and managers in the Nuwara Eliya district use some form of ICT in their business ($\bar{x}$ = 4.03, SD = 0.731). According to Table 03, the mean value of the cost of ICT was 1.87 and the standard deviation was 0.662 ($\bar{x}$ = 1.87, SD = 0.662). In that instance, the majority of depressed respondents chose the disagree level on a five-point Likert scale, indicating that they had a negative perception of the ICT cost. However, the respondents have demonstrated a moderate level of agreeableness to the availability of ICT infrastructure ($\bar{x}$ = 3.46, SD = 0.582) on five-point Likert scale.

When the owners and managers of the selected SMEs were inquired about the knowledge of ICT, the majority accepted that they have adequate knowledge in ICT ($\bar{x}$ = 4.15, SD = 0.692) which can be used to enhance the business performance. The mean value of the respondent's agreeableness to the perceived benefits of ICT indicates that the majority of respondents ($\bar{x}$ = 3.84, SD = 0.732) have a positive response. When asked about their ICT adoption and usage, the majority of SME owners and managers said they use it in their daily operations.

Correlation Analysis

The Pearson correlation coefficient (ρ) metric was used to determine the degree to which the determinants of ICT usage and adoption of a different form of ICT by the SMEs in Nuwara Eliya district are associated. The correlation coefficients and their significant values are summarized in Table 04.

Table 04: Pearson Correlations

Attribute	Coefficient	Adoption of ICT
Adoption and usage of ICT	Pearson Correlation	1.000
	Sig. (1-tailed)	-
Cost of ICT	Pearson Correlation	-.666**
	Sig. (1-tailed)	.000
Knowledge about ICT	Pearson Correlation	.370**
	Sig. (1-tailed)	.004
Available ICT infrastructure	Pearson Correlation	.289*
	Sig. (1-tailed)	.021
Perceived benefits of ICT	Pearson Correlation	.466**
	Sig. (1-tailed)	.000

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

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

The figures in Table 04 show the strength and direction of the linear association between the adoption of ICI by the SMEs and the determinates of ICT usage by those businesses with no assumption of causality. A statistically significant negative correlation is observed between the cost of ICT and the ICT usage by the SMEs ($r = -.666$, $p < 0.01$). Therefore, researchers conclude that there is a negative correlation between the cost of ICT and the ICT usage of SMEs in Nuwara Eliya district. In short, if the cost of ICT increases, the usage of ICT by SMEs decreases with the same magnitude (and vice versa). Tan *et. al.* (2010) also confirmed that the expensive price of the software is a significant barrier hindering internet-based ICT adoption while the service SMEs do not perceive it to be so.

The Pearson correlation coefficient between the ICT usage of SMEs and their ICT knowledge ($r = .370$, $p < 0.05$), and perceived benefits of ICT ($r = .466$, $p < 0.05$) signifies that the two variables being compared have a moderate positive relationship; when one variable move higher or lower, the other variable moves in the same direction with the same magnitude. Weak positive correlations were observed between the adoption of ICT by the SMEs and the available ICT infrastructure ($r = .289$, $p < 0.05$).

Regression Analysis

To estimate an average causal effect of determinants of ICT usage on the adoption of ICT in SMEs, the researchers used regression analysis. Also, the regression

coefficients were used to determine whether the selected variable is a positive or negative impact on the dependent variable.

Table 05: Regression Analysis

R Square 0.500	Adj. R Square 0.456		Sig. value 0.000	F value 11.254		Collinearity Statistics	
	Unstandardized Coefficients		Standardized Coefficients				
Model	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
(Constant)	4.011	.752		5.334	.000		
Cost	-.629	.131	-.590	-4.790	.000	.733	1.365
knowledge	.065	.154	.062	.424	.674	.778	1.285
Infrastructure	.247	.150	.197	1.649	.106	.523	1.911
Benefits	.157	.140	.157	1.122	.268	.564	1.774

The proportion of the variance in the response variable that can be explained by the predictor variable is measured using R-squared (R2). According to the statistics in Table 05, the R-squared is 0.5000, indicating that the selected determinants of ICT usage can explain 50% of the variance in ICT adoption by SMEs. Therefore, researchers concluded that the cost of ICT, available ICT infrastructure, ICT knowledge, and perceived ICT benefits have 50% ability to explain the total variation of ICT usage.

The adjusted R-squared was also used to examine how well various regression models fit together. The Adjusted R-squared for this data set is 0.456. According to the standard error of the regression, it was observed that the observed values fall an average of 0.752 units from the regression line. The F statistic (11.254) indicates that the regression model provides a better fit to the data, and the p-value indicates that the regression model as a whole is statistically significant ($F = 11.254$, $p < 0.05$).

A negative coefficient of the cost of ICT indicates a negative relationship with the ICT adoption of SMEs (β = -.629, $p < 1.05$). All other three independent variables (ICT knowledge, infrastructure, and benefits) show a positive relationship with the ICT adoption of SMEs. This finding supports the first hypothesis of this study (H_1), and thus, researchers concluded that the cost of using ICT discourages the adoption and usage of ICT among SMEs in the Nuwara Eliya District.

The p-values of these variables, on the other hand, imply that their impact on ICT adoption in SMEs is statistically negligible. As a result, researchers conclude that the

effect of ICT knowledge (β = .065, p = .674), available ICT infrastructure (β = .247, p = .106), and perceived benefits of ICT (β = .157, p = .268) on ICT adoption of SMEs in Nuwara Eliya district is statistically insignificant.

The coefficients in Table 05 are used to write the estimated regression equation:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

In this research, the estimated regression equation is: ICT adoption of SMEs = 4.011 - .629 (ICT cost) + .065 (ICT knowledge + .245 (ICT infrastructure) + .157 (ICT benefits) + ε

These findings support the last three hypotheses of this study. Accordingly, researchers conclude that the adoption and usage of ICT among SMEs in the Nuwara Eliya District is promoted and encouraged by the SME owners and managers ICT knowledge (H_2), the available ICT infrastructure (H_3), the perceived benefits of ICT infrastructure (H_4). As a result, the findings of this study confirm that, aside from the ICT cost coefficient, each individual coefficient is understood as the average increase in the response variable for each one-unit increase in a particular predictor variable, providing all other predictor variables are held constant.

5. Conclusion & Recommendation

The main purpose of this study was to look into information and communication technology (ICT) adoption among rural-based SMEs in Nuwara Eliya district, Sri Lanka, and see how they use ICT for their business purposes. Four independent variables, namely the cost of using ICT, knowledge in ICT, the availability of ICT infrastructure, and the perceived benefits of ICT were used in this study, while the ICT adoption was considered as the dependent variable. The independent variables were measured using 27 questions devised by the researchers. 50 SMEs were randomly selected as the sample of this study. The main statistical approaches utilized to investigate the association between influencing factors and ICT adoption in SMEs were correlation analysis and regression analysis.

As per the findings, researchers observed that several basic ICT technologies are regularly used by SME owners in the Nuwara Eliya district. The Pearson correlation analysis revealed an inverse relationship between the cost of ICT and the adoption of ICT in SMEs. The respondents are of the view that the use of some ICT tools is expensive and therefore, they reluctant to use them in their businesses. However, a positive relationship was observed between ICT knowledge, ICT infrastructure, ICT perceived benefits, and the ICT adoption of SMEs. The Pearson correlation coefficient between the ICT usage and their ICT knowledge, and perceived benefits of ICT indicates that the two variables being compared have a moderate positive relationship, which indicates that when one variable moves higher or lower, the other moves in the same direction with the same direction. Also, findings revealed that the use of ICT by SMEs and the availability of ICT infrastructure had weak positive relationships.

According to the coefficient of regression analysis, the cost of ICT negatively impacts the use of ICT in SMEs. The ICT knowledge, ICT infrastructure, and perceived benefits of ICT positively impact the usage of ICT in SMEs. In contrast, the p-values of these variables indicate that their impact on ICT adoption in SMEs is statistically insignificant. As a result, researchers conclude that the effect of ICT knowledge, available ICT infrastructure, and perceived benefits of ICT on ICT adoption of SMEs in Nuwara Eliya district is statistically immaterial.

Based on the above findings, researchers recommend that the government should further encourage SMEs to use mote ICT tools in their businesses. Since they are reluctant to use ICT because they are expensive, some policy measures are needed to overcome the ICT cost issue. Also, the knowledge in ICT should be enhanced among the owners and managers of rural-based SMEs. SME owners and managers, in particular, should be encouraged to expand their awareness of emerging ICT trends and practices within their industry, which will help them to outperform their competitors, especially in the cross-border markets. In addition to increasing their knowledge, their perceptions of the benefits of ICT can also be improved.

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