

ICT usage and SME Growth: An Analysis of Small and Medium Enterprises in Coastal Karnataka

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Abstract

Information Communication Technology (ICT) is a force in the economic growth equation of both developed and developing countries across the world. It can provide a better platform for SMEs, especially in a developing country like India, to overcome their constraints. The present study attempts to find out the commonly used ICT tools in the Small and Medium Enterprises and also tries to examine the relationship between the usage of ICT and growth of the firms. A sample of 100 Small and Medium Enterprises surveyed in this study. The results indicate that cost is one of the main factors which influence the SMEs decision to implement ICT. The study also found that the ICTs will enable the firms to reach out to a large number of their customers.

Keywords: Factor Analysis, ICT Tools, Information Communication Technology, Small and Medium Enterprises

1. Introduction

Small and Medium Enterprises (SME) are one of the major sectors in developing countries, which provides job opportunities, goods and services, supports innovation. Due to globalization and competition at the worldwide level, the SMEs are facing a lot of issues to cope up with current technology and adoption of the same. As a result, the SMEs are not in a position to gain the potential benefit, due to lack of information. The Information Communication Technology (ICT) is taking a leading role to support variations in the market, monitoring business cost, customer expansion and creation of wealth and so on in the area of SMEs⁹. The ICT can provide a better platform for SME sector, especially in a developing country like India, to overcome from their constraints through facilitating domestic and

international market access, networking, competitive positioning, information gathering, production of quality products, reduced logistics costs and enhance business transactions. The earlier research mainly focused on benefits derived from ICT and could not address the factors as well as related tools that influenced its implementation in SMEs. The current state of e-business technology in India assumes three components namely ICT adoption drivers, ICT usage, tools and the benefits derived from adopting ICT¹⁰. This study sought to provide an understanding the usage of ICT adoption from the SMEs perspective.

Information Communication Technology (ICT) is a force in the economic growth equation of both developed and developing countries across the world. In addition, ICT could help Small and Medium Enterprises to promote their business strategy, performance and growth. However, by

not accepting and using ICT tools, these SMEs struggle to overcome constraints they face and that prevents them from realizing potential growth opportunities. The study drew literature from key prior researches about ICT adoption and usage in SMEs. The primary researches used as the basis of this study include ^{1,7,8,11}.

The principal purpose of this study was to investigate the usage of ICT and SME growth. In order to achieve the objectives of this study, an attempt was made to obtain information from SMEs about ICT acceptance and its use in their business through a structured questionnaire.

2. Review of Literature

Based on the earlier research or study on ICT adoption, the factors affecting ICT adoption can be categorized as two major areas of focus. The first one focuses on benefits that perceived for adopting ICT, establishing knowledge of the business environment, experience of the decision makers in IT and pressure perceived from peer competition. The second one focuses on inhibiting factors of ICT, such as insufficient financing, lack of internal workforce, operations of small-scale magnitude, under developed ICT infrastructure and insecurity of information⁶. The adoption of ICT and its support provides the SME managers/ Owners with enhanced competitiveness. At the same time, it provides a platform for SME in the international markets¹⁰.

Chibelushi & Costello (2009) says that some SMEs are unwilling to cope up with technological changes in the developing world. They still would like to continue the traditional communication techniques to conduct their business. The Government or higher level decision makers might have got the insight of ICT for SMEs in order to support the economic growth of the Country. Even with the constant and encouraging efforts from Government, the static behavior and non-cooperativeness for implementation of ICT continue due to lack of knowledge. This is conflicting to efforts that their governments direct as a way of supporting and encouraging SMEs to adopt ICT in order to optimize effective

retail business growth. Other SMEs experience constraints that relate to the high cost of production, little profits, inappropriate linkages, poor networks, and continuous mismatch of market demand and supply. SMEs suffer from detrimental consequences and occasionally from unfavourable conditions that subject entrepreneurs and their customers to limited market attraction, and technological innovation.

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Their activities experience adverse challenges that eventually lead to customer loss and in many occasions culminate in their collapse². Several studies point out a number of factors that influence owners/managers of SMEs to adopt ICT in their business. According to Apulu and Latham (2011), the main drivers for adopting ICT include the competitive advantage that ICT provides, it enhances customer satisfaction, and that ICT saves time and cuts on cost. Other researchers argue that the age composition of owners/managers of SMEs and their level of education has great influence on ICT adoption (Chuang, Nakatani, and Zhou, 2009). Despite the technological hindrance that owners/managers of SMEs face, adopting ICT is necessary for successful business¹¹. Using the Internet increases the business's competitive advantage and provides vast understanding and information⁵. In developing countries, the adoption of ICT requires large financial investment capacity⁸ that is a critical factor hindering ICT adoption by the majority of SMEs.

Additionally, ICT provides a wide range of benefit to SMEs including improved performance in business, creating new organizational strategies and management models, reaching new markets,

developing business models, and sees into efficient and effective use of human resources (Barba-Sanchez et al., 2007). The ICT adoption phenomenon cuts across diverse forms of SMEs providing enterprise innovativeness that offers unique and state of the art products and services, for balancing market contributions and internal operations reinforcement. Owners/managers of SMEs require an understanding of the potential benefits of accepting ICT for them to develop a positive attitude for adopting and using it⁴. ICT related research findings offer SME owners and managers guidelines that they may use to promote adoption and utilization of ICT. SMEs, therefore, need to map competitive and cooperative strategies that align with ICT in their businesses¹¹.

SMEs position themselves to gain in several ways when they adopt ICT. The owners/managers of SMEs may realize economic returns in their enterprises while contributing to the country GDP at the same time. Research on ICT adoption provides a foundation of myriad benefits and barriers. Further, SME owners/managers discover several new constructs that they use to advance their businesses. These constructs include unique and personal distinctiveness, guiding principle, and training in ICT, commitment in ICT, promptness and firm ingenuity. Investigating different ICT applications through surveys across the border and longitudinal studies explain extensively the implementation of ICT in SMEs¹¹.

3. Data and Methodology

The present study considers both secondary and primary data for empirical analysis. The analysis of secondary data involves a literature review of published and semi-published sources which includes journals and reports of various committees. The micro-level empirical part of the research study is based on field survey confined to the MSMEs in Baikampady and Yeyyadi Industrial Area of Mangalore City Corporation.

According to District Industries Centre, Mangalore, 18918 small and micro enterprises exist in D.K district in Karnataka State as at the year end 2011-12 (MSMEDI, 2012). The micro and

small enterprises from the manufacturing sector in Dakshina Kannada district were considered which is 67.01% of the above i.e. 12676 enterprises (Fourth Census of MSME, 2005). For the purpose of studying manufacturing enterprises in industrially advanced locations namely Zone 4 (Industrial Policy note, Government of Karnataka, 2009) was considered. This ensured that IT infrastructure is available in the industrial area chosen as the population for sampling purposes. Further, the enterprises in Baikampady and Yeyyadi industrial area of Mangalore city corporation limits fall into this category. There are 475 enterprises in this industrial area (MSMEDI, 2012). Finally, in this study, we approached 100 SMEs in this industrial area with a structured questionnaire to meet the objectives stated.

3.1 Hypothesis

H0 : There is no relationship between the usage of ICT SMEs growth.

H1 : There is a relationship between the usage of ICT SMEs growth.

4. Result and Discussion

4.1 Description of Sample

The study sought information about the profile of the company that included the form of business, the age of business and the number of employees. Figure 1 presents the business profiles using frequencies. The findings indicate that 37.7% (n = 40) of surveyed SME businesses were 11 to 15 years old. 15.1% (n = 16) of SMEs were 1-5 years old, 37.7% (n = 40) of SMEs were 11-15 years old, and 17% (n = 18) of the SMEs surveyed were 16-20 years old. 12.3% of the SMEs (n = 13) were older than 20 years. The results show that the majority of the businesses had established for many years that provided the SME owners/managers the opportunity to realize the importance of accepting and using ICT.

The results further indicate that sole proprietors owned 65.1% (n = 69) of the SMEs surveyed, 29.2% (n = 31) of SMEs were under partnership ownership and private limited

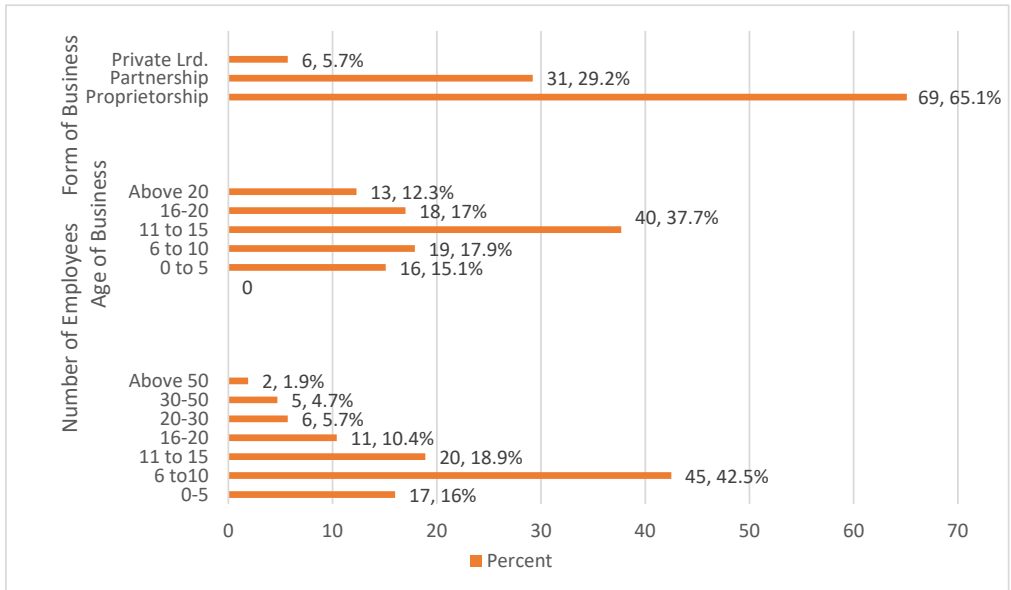


Figure 1. Business characteristics of SMEs surveyed.

companies owned 5.7% ($n = 6$) of the SMEs. These results demonstrate that individual entrepreneurs under sole proprietorship and partnerships formed the majority of SMEs surveyed. Additionally, the results indicate that the majority of surveyed SMEs 42.5% ($n = 45$) had 6-10 employees. 18.9% ($n = 20$) had 11-15 employees and 16% ($n = 17$) of SMEs had 1-5 employees. Further, 2 SMEs had hired more than 50 employees for its day to day operations.

4.2 ICT Tools used by SMEs

An attempt was made to find out what are the usually used ICT tools in SMEs. The respondent SMEs were asked to rate the use of ICT tools in SMEs. The results from the survey are presented in table 1 using mean, standard deviations and frequencies. The rating scale ranged from 5 = Most used, 4 = Used, 3 = Sometimes used, 2 = least used and 1 = Not used at all. Only results that have a mean score of more than 3.4 are discussed. 74.5% of SMEs used mobile phones, and 51.8% of the surveyed SMEs used computer applications as ICT tools. In addition, SMEs stated that printer 51.8% (mean = 3.72), photocopier 42.5% (mean = 3.76), internet connection 39.6% ($M = 3.65$),

laptops 27.4% (mean = 3.35) and website 19.8% (mean = 2.7) were used as ICTs in SMEs. The results exhibit that most SMEs surveyed use basic communication tools needed essentially for their firms to operate. Mokaya, in the year 2012, too opined that most owners of small enterprises used mobile phones, computer-based programs and the Internet for running their business.

Further, an attempt was made to study the relationship between the usage of ICT and SME growth. The computed results are presented in Tables 2 and 3. Scatter plots were used to pair the variables against each other in order to visually determine the combined form of relationship and subsequently generate a line of best fit through plotted points. A Pearson's correlation in Table 3 of the data analysis found a moderate positive correlation between ICT usage and SMEs growth ($r = .6750$, $n = 106$, $p = < 0.0001$, $R^2 = 0.4556$) which supports that there is an association between the growth of SME because of the usage of internet and communication technology and hence alternate hypothesis is accepted. It was also observed from Table 2 that there were significant p values for all the variables leading to SME growth and the coefficients were

Table 1. Summary results of frequencies and mean scores of commonly used ICT tools in SMEs

ICT Tools	Most Used	Used	Percentages and Count			Mean	StdDev
			Sometimes Used	Least Used	Not Used at all		
Computer Applications	55 (51.8%)	24 (22.6)	14 (13.2)	5 (4.7)	8 (7.55)	4.07	1.24
Laptop	29 (27.4)	19 (17.9)	30 (28.3)	16 (15.09)	12 (11.3)	3.35	1.33
Fax	5 (4.7)	13 (12.3)	29 (27.4)	30 (28.3)	29 (27.3)	2.39	1.15
Printer	55 (51.8)	14 (13.2)	7 (6.6)	10 (9.4)	20 (18.8)	3.72	1.60
Photocopier	45 (42.5)	6 (5.7)	15 (14.2)	12 (11.3)	28 (26.4)	3.26	1.70
Mobile Phones	79 (74.5)	20 (18.9)	5 (4.7)	2 (1.9)	0	4.66	0.66
Internet	42 (39.6)	23 (21.7)	14 (13.2)	16 (15.1)	11 (10.4)	3.65	1.40
Website	21 (19.8)	10 (9.4)	28 (26.4)	10 (9.4)	37 (34.9)	2.70	1.52
Landline	32 (30.2)	10 (9.4)	29 (27.4)	18 (16.9)	17 (16)	3.21	1.45
Telex	0	1 (0.9)	16 (15.1)	36 (33.9)	53 (50)	1.67	0.76
Scanner	25 (23.6)	19 (17.9)	14 (13.2)	18 (16.9)	30 (28.3)	2.92	1.56
IT Infrastructure	4 (3.8)	23 (21.7)	25 (23.6)	27 (25.5)	27 (25.5)	2.53	1.20
Enterprise Software	8 (7.6)	20 (18.9)	22 (20.8)	29 (27.4)	27 (25.5)	2.56	1.27
IT Staff	7 (6.6)	22 (20.8)	24 (22.6)	23 (21.7)	30 (28.3)	2.56	1.28
Typewriter	0	1 (0.9)	7 (6.6)	38 (35.8)	60 (56.6)	1.52	0.67

Table 2. Pearson's correlation between usage and SME growth

Variables	R	p-values	R2	Mean	Standard deviation
Create new markets	0.691	0.000	0.477	3.066	1.333
Improve business relationships	0.744	0.000	0.554	3.292	1.250
Internal efficiency	0.543	0.000	0.294	3.509	1.089
Networking	0.447	0.000	0.200	2.915	1.288
Facilitate transactions	0.354	0.000	0.125	2.991	1.306
Manage information and knowledge	0.408	0.000	0.167	2.934	1.205
Improve customer service	0.710	0.000	0.504	3.613	1.208
Increase in Returns on Investment (ROI)	0.109	0.267	0.012	2.566	1.331
ICT usage	1		1	2.982	0.882

positive. This, in turn, states that there is a positive effect of usage of ICT on the growth of the firms.

A scatter plot recapitulates the results in Figure 2. Increases in ICT usage correlated with increases in SME retail business growth. The study further used a probability-probability (P-P) plot to assess the assumption that variables from which the sample variables had a normal distribution (Ghasemi and Zahediasl, 2012). As the plotted

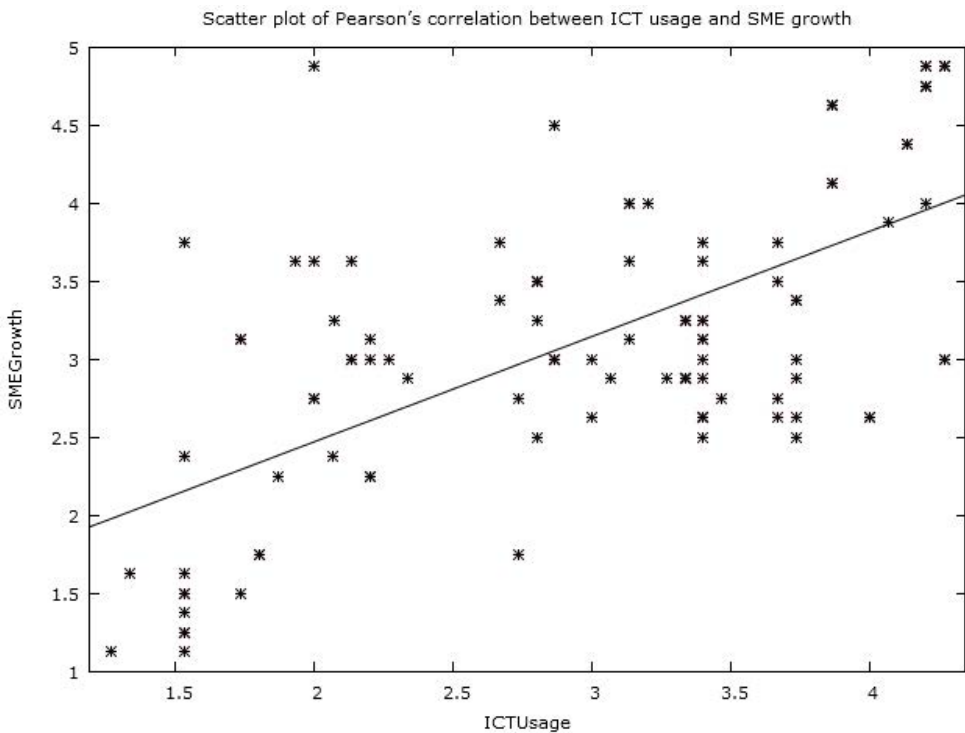
points lie along the diagonal line, the normality assumption is supported. The visual inspection of the P-P plot indicated no observable violation of normality assumption.

5. Conclusion

The study findings indicate a high frequency of use of mobile phones and computers. These

Table 3. Summary results of Pearson's correlation; ICT usage and SME growth

Particulars	R		p		Rsquare		Mean	SD
	ICT Usage	SME Growth	ICT Usage	SME Growth	ICT Usage	SME Growth		
ICT Usage	1	0.6750	0.0000	< 0.0001	1	0.4556	2.9824	0.8817
SME Growth	0.6750	1	< 0.0001	0.0000	0.4556	1	3.1108	0.9210

**Figure 2.** Scatter plot of Pearson's correlation between IST usage and SME growth.

results are attributable to their low costs and maintenance charges as compared to other ICTs. This high frequency of computers is plausible because computers can be used for several purposes including ease of operations, improved communication, handling production and many others as compared to other ICTs. The study examined and revealed a positive relationship between ICT usage and SME growth. These SMEs have a competitive advantage when they use ICT which enables them to spread out to a larger base of customers for their products and services.

6. References

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