



An Investigation into the Obstacles and Advantages of Integrating Information and Communication Technology (ICT) Within Small and Medium Enterprises (SMEs)

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	Abstract
<p>Received: 10th Feb 2022 Revised: 17th March 2022 Accepted: 22nd April 2022</p>	<p>Aims: This study aims to investigate the barriers hindering the adoption of Information and Communication Technology (ICT) in Small and Medium Enterprises (SMEs) while also discussing the advantages resulting from ICT integration within these enterprises.</p> <p>Methodology: Extensive literature review was conducted to identify the factors impeding ICT adoption in SMEs, as well as the benefits arising from its adoption. Secondary data was gathered from various sources such as research journals, books, theses, reports, and working papers.</p> <p>Findings: The study revealed that factors such as awareness of ICT, ICT costs, and ICT infrastructure pose barriers to ICT adoption in SMEs. Conversely, benefits arising from ICT adoption include increased productivity, improved buyer-seller relationships, and enhancements among both internal and external stakeholders.</p> <p>Practical Implications: This research can assist SMEs in recognizing the significance of ICT adoption and understanding the factors inhibiting their utilization of ICT. SMEs can devise strategies to minimize barriers to ICT adoption and maximize the benefits derived from its integration.</p> <p>Keywords: <i>ICT, SMEs, preventing factors ICT, benefits of ICT, and competitive advantage</i></p>
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Introduction

The significance of Information and Communication Technology (ICT) in industry cannot be overstated, particularly for Small and Medium Enterprises (SMEs), which benefit from its varied applications. This review of literature focuses on elucidating the barriers to ICT adoption in SMEs and the multitude of benefits it offers to them.

Research by Rahayu & Day (2017) and Yunis et al. (2017) underscores the pivotal role of ICT tools in driving socioeconomic development, particularly in developing countries. Similarly, Premkumar's (2003) study underscores the various benefits and business opportunities afforded by IT adoption. However, the cost of IT remains a critical factor influencing ICT adoption in SMEs, as evidenced by studies by Walczuch et al. (2000) and Ollo-Lopez and Aramendia-Muneta (2012).

Nevertheless, the adoption of ICT, including e-commerce, email, and social media, significantly reduces costs and efforts associated with physical goods and service movement, as argued by Manochehri et al. (2012). Apulu

and Latham's study highlights how ICT adoption enables immediate customer feedback, driving organizational innovation and competitiveness.

Conversely, barriers to ICT adoption persist, with Arendt (2008) attributing them to a lack of knowledge, education, and skills among internal stakeholders. Parida (2010) emphasizes the role of business owners' perceptions, while Love et al. (2001) highlight the unsuitability of ICT to certain types of businesses.

Moreover, the lack of ICT skills is identified as a major problem in Africa, with initiatives like the Skills Education Training Authority (SETA) aimed at enhancing skills, as noted by Modimogale & Kroeze (2011). Socioeconomic and technological factors also influence ICT adoption, as noted by Morawczynski & Ngwenyama (2007).

Despite these barriers, ICT plays a significant role in enhancing productivity and effectiveness across various functional areas, as demonstrated by Brady et al. (2002). Furthermore, ICT enables access to markets and the creation of new business models, as argued by Corbitt (2000) and Javalgi & Ramsey (2001).

Internet-based ICT tools reduce information gaps between buyers and sellers, fostering closer relationships among stakeholders, as found by Moodley (2002). Additionally, ICT adoption enhances efficiency, effectiveness, innovation, and global recognition, as highlighted by Jones et al. (2014), Rahayu and Day (2017), and Tarute & Gatautis (2014).

Moreover, the application of ICT enables SMEs to compete with larger organizations, enhancing their effectiveness and efficiency across various processes and functions, according to Agwu & Murray (2015). Finally, studies by Niebel (2018) and Rahayu & Day (2017) reveal a significant increase in ICT adoption among large and SMEs in developed countries since 2005.

Objectives of the Study

1. To explore the factors preventing ICT adoption in SMEs.
2. To discuss the benefits of ICT adoption in SMEs.

Research Methodology

The research study is based on secondary source of data. The secondary source of data is collected through various sources like research journal, Government report, conference proceedings, thesis, books etc.

Factors Preventing Adoption of ICT in SMEs

The large organizations have adequate resources to adopt ICT but SMEs are not having sufficient resources to adopt or implement ICT effectively and efficiently. There are certain parameters which are preventing SMEs from ICT adoption.

Awareness about ICT

Awareness about ICT by various stakeholders of SMEs is playing very significant role in successfully adoption of ICT and getting benefit due to ICT adoption. Various research studies have shared their research findings on this concerned topic. The awareness about ICT by owner, manager, employee, customer, supplier, etc very important to SMEs. The study conducted by Yeung *et al.*, (2003)^[43] and Pires and Aisbett (2001)^[32] argued that expensive ICT tools, risk and security concern, lack of technical expertise and customer relationship are the major reasons of ICT adoption in SMEs. The study carried out by Windrum *et al.*, (2003)^[41] concluded that ICT knowledge of owner/CEO is significant in ICT adoption by SMEs. The level of ICT awareness by decision makers decided the success or failure of ICT adoption in SMEs. According to study of Allison (1999)^[2] skill, competency and knowledge of employees is very important and playing significant role is successful adoption of Technology in organization.

Cost of the ICT

Small and medium enterprises are having very low spending capacity. They are not in position to take fast decision making of buying of ICT for firm. The study carried out by Dixon *et al.*, (2002)^[12] argued that ICT adoption by SMEs is highly depend on the costing of ICT. The cost of the ICT is highly influencing the rate of adoption of ICT by SMEs. Levy *et al.*, (2002)^[20] argue that technology becomes more affordable but still this huge investment for SMEs and there is no such provision of funds in budget. The study carried out by Craig & Annear (2003)^[11] revealed that adoption of ICT required certain changes in business processes. Such changes are crucial for business. If these changes are not handled properly, there are chances of losses to small firms

and such risk of losing of finance is one of the fears to SME regarding ICT adoption. Gemino *et al.*, (2006) ^[14] revealed that SMEs are avoiding ICT adoption because of fear of failure and financial losses.

ICT infrastructure

The availability of ICT infrastructure is one of the significant factors for SMEs. The SMEs can be benefitted from this ICT infrastructure but the absence of ICT infrastructure creates several problems. The study conducted by Modimogale & Kroeze (2011) ^[24] found that due to lack of infrastructure access to information is one of the significant problem form SMEs. Access to easy information is assisting SMEs to take prompt decision over adoption of ICT. The rural areas are underdeveloped, need to work on development of infrastructure like electricity, telephone lines etc. The study carried out by Wolf (2001) ^[42] found that South African SMEs are facing problems with respect to poor or limited access to technology and ICT infrastructural facilities. According to Lal (2007) poor physical infrastructure is one of the major barriers in successful ICT adoption by SMEs.

Benefits Due to ICT Adoption in SMEs

The study of carried out by Udo & Edoho (2000) ^[39] argue that adoption of ICT gives benefits to almost all sectors of economy and can do the improvement in living standard of individuals, enhancement in various business processes and improve organizational productivity and efficiency.

Improvement in Productivity

The study conducted by Barba-Sanchez *et al.* (2007) concluded that adoptions of ICT gives benefits like reduction in cost of various processes and functions of business, improvement in productivity of the internal stakeholders and enhancement in possibilities of growth in business. The study carried out by Shiels *et al* (2001) found that organizations can have a growth in business by aligning it with various business strategies. This means firms need to have right technology at right and suitable place would assist in improvement of productivity.

Improvement in buyer and seller relation

The buyers and sellers are the integral part of marketing function. ICT adoption is enabling firms in creating demand for product and service as well as sales and distribution of the product to end user. The study conducted by Pine *et al.*, (1995) ^[31]; Prasad *et al.*, (2001) ^[33] concluded that ICT enable marketer to target particular segment of customer by using various marketing communications tools. ICT adoption is helping marketer to improve and enhance the relationship between firm and consumers. ICT is assisting firms in targeting, segmentation and positioning of product and services and gives competitive advantage. The study carried out by Leenders & Wierenga (2002) ^[19]. Rothwell (1994) ^[37] argue that ICT adoption is enabling in creating new and strong linkages between internal processes and functions of the business. These activities are directly or indirectly concern with consumer and suppliers of the business.

Improvement in communication of Stakeholders

ICT adoption is enabling SMEs to improve the communication between internal as well as external stakeholders of the business. This improved communication among stakeholders is giving competitive advantage to SMEs. The study carried out by Brynjolfsson & Hitt (2000) ^[8] revealed that ICT adoption is enabling various management functions such as reduction in cost of coordination, processing of information at lowest or minimum cost, offering services at affordable price and modes of communication are fast and reduced cost. The study carried out by Ion and Andreea (2008) ^[15] found that the ICT adoption by SMEs enables to improve communication ability to exchange information, coordination among team members, and enhancement in customer services and increase in market share and so on. It allows organization to collect, process, stored and exchange information. The study carried out by Bhalerao, K. & Patil, V. (2021) ^[5] concluded that adoption of Social media tools, e-commerce and m-commerce Applications and Industry 4.0 technologies are benefitting SMEs in gaining competitive advantage and sustain in a market.

Conclusion

The undertaken study concluded that ICT adoption is facing problems and offer certain benefits to SMEs. The preventing factors like lack of physical infrastructure, high initial and maintenance cost of ICT and low ICT awareness among decision makers are preventing ICT adoption. The adoption of ICT among SMEs is offering various kinds of benefits like increase in productivity, enhancement in customer & supplier relationship

management and improvement in communication among internal as well as external stakeholders of the SMEs. Though there are barriers to ICT adoption but the ICT is the future of SMEs and industry at large.

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