

Exploring the Impact of Information and Communication Technology Tools Use on Small and Medium Enterprises (SMEs) in Mvomero District, Morogoro, Tanzania

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ABSTRACT

This study examines the integration of information and communication technology (ICT) in primary education, focusing on teacher competencies, infrastructure, and pedagogical practices. It highlights global and national frameworks such as UNESCO's ICT Competency Framework for Teachers and the European DigCompEdu, which outline progressive stages from basic ICT skills to advanced pedagogical integration and innovation. The research identifies persistent challenges in sub-Saharan Africa, including limited access to electricity, inadequate hardware and software resources, and gaps in continuous professional development. Evidence from Tanzanian contexts, particularly Ileje District, reveals that while basic ICT operational skills are commonly acquired, application of ICT-pedagogical competencies remains limited due to infrastructural constraints, insufficient institutional support, and fragmented training approaches. Innovative teaching strategies like project-based and blended learning are discussed as effective methods for embedding technology into curriculum delivery, contingent on teacher preparedness and resource availability. Assessment frameworks based on international standards provide tools for measuring ICT competence and integration effectiveness, linking teacher skills to improved educational quality and student outcomes. The findings emphasize the importance of leadership, infrastructure, and sustained professional development in advancing ICT use in classrooms. Future directions include promoting collaborative professional networks, ensuring equitable access to technology, and embedding ICT skill development within authentic teaching scenarios to enhance instructional practices and learner engagement.

Keywords:

Artificial Intelligence (AI), Early Childhood Language Development, Language Learning, Educational Technology

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1. INTRODUCTION

Information and Communication Technology (ICT) has become a key driver of business development and economic growth worldwide (Sołek, 2017; Asta & Rimantas, 2013). Rapid technological advances have transformed how businesses operate by improving communication, information management, service delivery, and interactions with customers and suppliers (Vidgen, Francis, Powell, & Woerndl, 2004). In today's business environment, ICT tools such as social media (Isma, 2015), mobile phones (Christian & Stefan, 2013), cloud computing (Gregor & Valerij, 2015), e-commerce platforms (Peter & Michael, 2015), and computers (Michael & Uwe, 2015) are essential for enhancing business efficiency and competitiveness. Consequently, businesses of all sizes increasingly rely on digital technologies to improve their operations and meet the demands of the modern business environment.

Small and Medium Enterprises (SMEs) play a vital role in promoting economic development by creating jobs, generating income, reducing poverty, and fostering innovation (Ramsey et al., 2003). As competition intensifies in the globalized economy, SMEs must adopt modern technologies to improve productivity and remain competitive. Effective use of ICT tools enables businesses to reduce operational costs, strengthen customer relationships, facilitate information sharing, and expand market opportunities. Furthermore, ICT supports knowledge management and enhances the overall performance and sustainability of enterprises (Celina, 2018).

Across developing countries, ICT adoption is widely recognized as a key driver of economic transformation and sustainable development. In many African countries, digital technologies have facilitated communication, financial transactions, marketing, and access to information. The growth of mobile technologies, internet connectivity, and digital platforms has enabled SMEs to bridge the gap between rural producers and urban markets, thereby increasing business opportunities and promoting inclusive economic growth (Samuel, 2012). Despite these benefits, many enterprises continue to face challenges related to inadequate infrastructure, limited digital skills, and financial constraints, which hinder the effective adoption and use of ICT tools.

In Tanzania, SMEs constitute an important sector of the economy, contributing significantly to national income and employment. Recognizing the importance of digital transformation, the Government of Tanzania has incorporated ICT development into national strategies, including the Tanzania Development Vision 2025 and the Digital Tanzania Project (Carol & Moica, 2013). These initiatives aim to improve ICT infrastructure, enhance digital literacy, and create an enabling environment that supports entrepreneurship and innovation. These efforts are intended to ensure that businesses, including those in rural areas, can benefit from technological advances and participate effectively in the digital economy.

Mvomero District in Morogoro is among the areas where SMEs play a major role in supporting livelihoods and local economic development. However, the extent to which these businesses use ICT tools and the impact of these technologies on their performance remain insufficiently explored. Therefore, this study seeks to examine the impact of ICT tool use on SMEs in Mvomero District, Morogoro, Tanzania. The study aims to assess how ICT tools contribute to business operations, efficiency, communication, market expansion, and overall business performance, while also identifying the challenges SMEs face in adopting and using ICT technologies effectively. According to Timothy & Joshua (2016), in Mvomero specifically, small and medium businesses face localized challenges such as distance to technical service centers and erratic internet connectivity. There is currently a lack of rigorous, localized research that moves beyond general trends to measure exactly how ICT tools influence the bottom line of Mvomero SMEs (Beckinsale, M., M. Levy, and P. Powell, 2006). Without this evidence, policymakers and support organizations such as the Small Industries Development Organization (SIDO) cannot design interventions that address the specific needs and constraints of rural traders and farmers in the district.

1.1. Research Questions

As part of a larger research project, a set of questions was directed to the top decision-makers of SMEs. Following a literature review, four groups of questions were identified to investigate the impact of ICT tool use in SMEs. The research questions are as follows.

1. *What are the types of ICT tools used by small and medium Enterprises within Mvomero district in Morogoro?*
2. *What are the uses of ICT tools used in small and medium Enterprises?*
3. *What are the perceptions of small and medium-sized enterprise owners toward ICT tools?*
4. *What challenges do small and medium-sized enterprises face in adopting ICT tools?*

2. LITERATURE REVIEW

2.1. Theoretical Review

2.1.1. Technology Organization Environment (TOE)

Developed by Tornatzky and Fleischer (1990), this theory is an organizational-level theory that explains how a firm's context influences its decision to adopt and implement technological innovations. Unlike individual-level models like TAM, TOE focuses on high-level institutional factors.

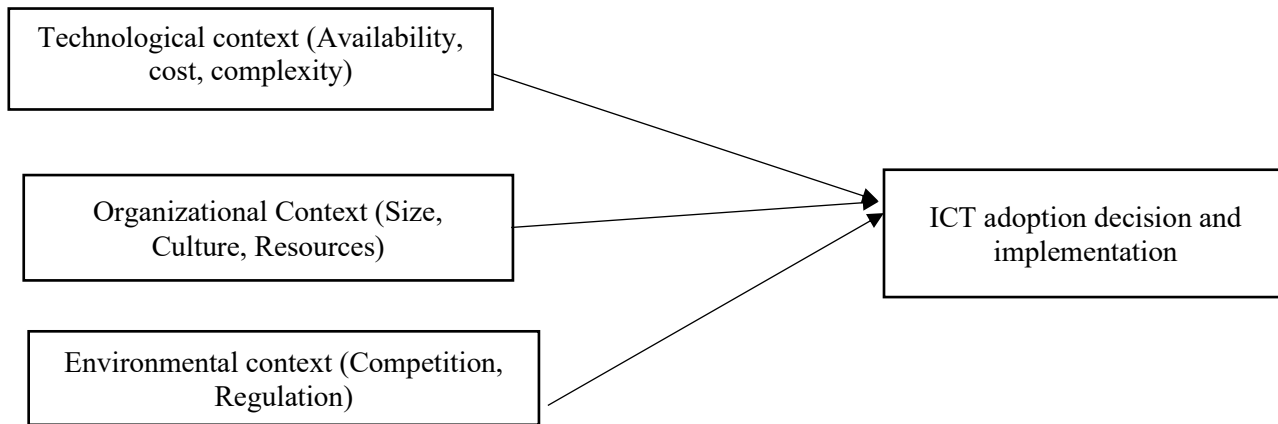


Fig 1: Technology organization Environment (TOE)[Source: *Tornatzky & Fleischer, 1990*]

Technological Context, Technology Availability refers to a firm's ensuring that it has the technology infrastructure and IT human resources necessary to exploit ICTs (Hong & Zhu, 2006; Pan & Jang, 2008; Zhu & Kraemer, 2005). A firm's ability to integrate technology to meet business demands has been found to improve customer service and the conduct of business in general (Barua, Konana, Whinston, & Yin, 2004; Zhu, Dong, Xu, & Kraemer, 2006).

ICT characteristics play a key role in the process of ICT adoption within SMEs. These characteristics include the type of ICT, process compatibility, user-friendliness, the popularity and quality of software available in the market, the costs of ICTs, and the perceived impacts and benefits of ICTs on the organization (Cesaroni, Consoli, & Sentuti, 2011; Premkumar, 2003; Salmeron & Bueno, 2006). Shin's 2006 study of the adoption of enterprise application software reveals that user-friendly, well-established enterprise applications are more effective in SMEs than hard-to-understand, brand-new applications. It is necessary for SMEs to consider the appropriate application for their business when deciding whether or not to implement new ICT (Nguyen, 2009). Poor ICT investment decisions can negatively affect profitability (Ghobakhloo, Sabouri, Sai Hong, & Zulkifli, 2012).

Organizational Context. Lee & Xia (2006) have noted that firm size is one of the most commonly studied determinants of ICT adoption. Although research has shown that large firms are more likely to innovate, ICT adoption often requires close collaboration and coordination, which can be more easily achieved in small firms (Oliveira & Martins, 2010). Moreover, empirical studies have consistently found that perceived benefits significantly influence IT adoption (Beatty, Shim, & Jones, 2001; Lin & Lin, 2008).

Environmental Context. Competitive pressure refers to the degree of pressure a firm feels from competitors within the industry. Porter & Millar (1985) noted that competitive pressure was an innovation-diffusion driver. They suggested that, by adopting a new innovation, firms might be able to alter the rules of competition, affect the industry structure, and leverage new ways to outperform rivals, thus changing the competitive landscape. This analysis can be extended to ICT adoption. Empirical evidence suggests that competitive pressure is a powerful driver of ICT adoption and diffusion (Al-Qirim, 2007; Battisti, Hollenstein, Stoneman, & Woerter, 2007; Grandon & Pearson, 2004).

2.2.1. Evaluation of the DOI Theory

The DOI theory offers a useful framework for understanding SMEs' ICT adoption because it explains innovations, the adoption decision-making process, and the environment in which adoption occurs. However, it does not adequately account for the complex social and relational factors that influence ICT adoption, such as family and business networks (Dyerson & Spinelli, 2001). ICT adoption and use involve interactions among multiple actors and are shaped by contextual factors, including unequal access to

ICTs and geographical location (Walsham & Sahay, 2006; Cayla, Cohen, & Guigon, 2005; Golding, Donaldson, Tennant, & Black, 2008). For instance, SMEs in rural areas may face challenges in accessing and adopting ICTs (Apulu & Latham, 2009). In addition, awareness of ICTs does not necessarily lead to adoption, as the process requires practical knowledge and skills that the theory does not sufficiently address (Parker & Castleman, 2009). Therefore, the DOI theory should be integrated with other theories to provide a more comprehensive understanding of SMEs' ICT adoption (Rogers, 1995).

The DOI theory was adopted in this study because it provides a strong foundation for explaining how innovations are introduced and adopted within organizations. The theory is relevant to this study because it helps explain the factors that influence the adoption and use of ICT tools among SMEs and how such adoption contributes to business performance.

2.1. Empirical Literature Review

2.2.1. The types of ICT tools used by small and medium Enterprises

According to Victoria (2003), ICT tools refer to a range of technologies used for transmitting, storing, creating, sharing or exchanging information, including computers, broadcasting technologies and telephony. Also, Ikwuazom & Ogwueleka (2002) defined ICT tools as a wide range of technological applications, digital broadcast technologies, telecommunications technologies as well as electronic information resources. Different authors identified various ICT tools including social media (Isma 2015, Christian & Stefan 2013), Mobile phone (Taimur 2016, Gregor & Valerij 2015), Cloud computing (Peter & Michael 2015), E-commerce platforms (Domenico 2008) and Computer (Michael & Uwe 2015). Thus, SMEs uses different ICT tools so as to facilitates the online business and marketing activities.

Social media refers to web-based interactive applications where individuals make up online communities with conversational media and specific information flow. The features of these communities are producing something, and monitoring, criticizing, or publishing what is produced. Social media channels create a virtual world (Isma 2015). The increasing number of users on social media platforms, which are becoming more easily accessible to consumers via mobile apps (Christian & Stefan 2013) raises the importance of social media use in marketing strategies for enterprises. The literature points to the importance of social media for marketing activities (Ikwuazom & Ogwueleka 2002). Social media channels used for communication are becoming increasingly popular in marketing. The most prominent social media tools are Facebook, Twitter, and YouTube Compared with traditional marketing communication channels, social media offer enterprises significant advantages, such as reaching potential customers and large audiences and establishing direct interaction with the target population in a cost-effective way.

Mobile phone adoption and use have advanced economic development substantially in many developing countries by increasing the market efficiency. First of all, mobile phones provide access to critical information such as agricultural information, employment opportunities, business opportunity which connects the labor demand and supply network (Taimur 2016). For example, mobile phones connect Indian fishermen and Kenyan farmers to the business network that improves their production, marketing and increase the overall income. Mobile Phones help SMEs to serve broader geographic areas and to reach new consumers. Mobile phones also spanned a wide variety of businesses (Gregor & Valerij 2015).

Cloud computing provide opportunities for product innovation, with ICT-focused firms developing and selling new Cloud-based products and services to a rapidly expanding global market. They further provide opportunities for process innovation, as non-ICT-focused organizations purchase Cloud-based services, rather than investing in their own in-house ICT capabilities, in order to reduce costs and increase competitiveness. Despite these differing classifications, the distinction between Cloud vendors and Cloud consumers can be quite fuzzy. Firms, for example, may use Cloud platforms to develop their own Cloud-based software services, which then 'sit' on an external Cloud provider platform. Cloud-based infrastructure services also provide relatively cheap computational power that allows organizations to analyses large amounts of in-house 'big data', which in turn assists these organizations develop their future in-house plans and strategies (Peter & Michael 2015).

E-commerce platforms can have different impacts on customers (Domenico Consoli 2008). The customer can visit many time the website to acquire additional information and then conclude the online transaction or buy in a physical store. Several studies have been conducted on the factors that stimulate consumers to use online business applications (e-banking, e-commerce). Examined consumer attitudes towards shopping in virtual stores and user characteristics for the adoption of Internet Banking. Both are agreed that young people are favored to execute online transactions.

Computer also applied in SMEs according to Michael & Uwe (2015), computers are used as important business resources that support employees and managers in accessing information, improving communication and making business decisions. Computers in SMEs can present information in different multimedia formats such as text, graphics, audio, video, and online presentations. This helps enterprises improving training, marketing, customer service and communication. For example, SMEs use computers to create

advertisements, manage social media. Furthermore, computers allow employees to choose flexible ways of learning and working. Staff members can use online tutorials, business software, and digital platforms to improve their skills and productivity. However, effective use of computers in SMEs still requires guidance and support from managers, ICT specialists, or trainers. These individuals help workers understand how to use technology correctly, evaluate information, and apply digital knowledge effectively in business operations.

Table 1:

Summary of ICT tools used in small and medium enterprises

ICT tools	Uses	Citation(s)
Social media	Used in communication and becomes and marketing activities such as Facebook and YouTube	Isma 2015, Christian and Stefan 2013
Mobile phones	Used to provide access to critical information such as employment opportunities	Taimur 2016, Gregor & Valerij 2015
Cloud computing	Used to provide opportunities for product innovation and selling new cloud-based product and services	Peter & Michael 2015
E-commerce platforms	Used to stimulate consumers to use online business applications	Domenico 2008
Computers	used as important business resources that support employees and managers in accessing information	Michael & Uwe 2015

2.2.2. Uses of ICT tools used in small and medium enterprises

ICT tools play an important role in growth and success of SMEs. According to Ajuzie & akukwe (2015), ICT tools help businesses improve communication both within the organization and with customers, suppliers, and other businesses. Through the use of emails, mobile phones, internet services, social media, and video conferencing, SMEs are able to exchange information quickly and effectively. Also, ICT allows businesses to collaborate more efficiently and improve their business processes, which helps save time and reduce operational costs.

ICT tools are also useful in improving efficiency and information management within SMEs. Businesses use computers, databases, accounting software, and cloud storage systems to store, retrieve, and process information more effectively. According to Margaret, & Oyinkansola (2017), information technology has become an important business resource that organizations invest in to gain competitive advantage. ICT tools reduce paperwork, minimize errors, and speed up daily business activities such as record keeping, inventory management, and financial reporting. As a result, SMEs are able to make faster and more accurate decisions, which improves overall productivity and performance.

Another important use of ICT tools in SMEs is creating competitive advantage. Onyedimekwu & Oruan (2013), defines competitive advantage as a situation where a business implements as value creating strategy that competitors cannot easily imitate. ICT helps SMEs improve customer service, reduce operational costs, and provide better products and services than competitors. Billal, & Nargis (2023), explains that businesses can achieve competitive advantage through cost reduction or differentiation strategies. By using internet services, online systems, and digital platforms, SMEs are able to position themselves strategically in the market and compete effectively with larger organizations.

ICT tools also support marketing and customer relationship management in SMEs. Many businesses use websites, Facebook, Instagram, WhatsApp, and other digital platforms to advertise their products and services. Digital marketing allows businesses to reach a large number of customers quickly and at a lower cost compared to traditional advertising methods such as newspapers, televisions, or radio. Through social media platforms, SMEs can communicate directly with customers, receive feedback, and build strong customer relationships. Okoro & Otuza (2021). states that digital technologies have transformed marketing activities by making

communication more efficient and customer centered.

Also, ICT tools facilitate faster and safer financial transactions in SMEs. Technologies such as mobile banking, online payment systems, and electronic money transfer services help businesses send and receive payments conveniently. This reduces the risks associated with carrying cash and improves financial management. ICT also supports e-commerce and online shopping, enabling businesses to sell products and services electronically without physical interaction. According to Celina, (2018), ICT has improved electronic commerce and expanded business opportunities for organizations. Furthermore, ICT tools promote innovation and business growth in SMEs. Through internet access and online learning platforms, businesses can obtain market information, research new ideas, and identify business opportunities. ICT enables SMEs to expand beyond local markets and compete internationally through e-commerce platforms and online marketplaces. Paul, (2015), explain that ICT encourages creativity and innovation because businesses can easily access information about new products, services, and strategies. This helps SMEs adapt to changes in the market and improve their competitiveness. Despite these benefits, sustaining competitive advantage through ICT remains a challenge for many SMEs. Shahram, & Nahid, (2012), argue that ICT advantages are often temporary because competitors can easily copy technological innovations. Once other businesses adopt similar technologies, the uniqueness and benefits gained may decrease quickly. Therefore, SMEs need continuous innovation, effective ICT implementation, and proper business strategies in order to maintain long-term success and competitiveness.

2.2.3. The perception on small and medium enterprises owners towards ICT tools

The perception of SMEs owners towards ICT tools has become an important area of study because ICT adoption influences business growth, efficiency, and competitiveness. Many SME owners perceive ICT as an essential tool that can improve communication, increase productivity, reduce operational costs, and expand market opportunities. According to Mihaela (2014), business organizations can benefit significantly from the opportunities created through the implementation of ICT strategies. ICT enables enterprises to introduce new products and services and market them through digital platforms. The author further explains that ICT provides business owners with an understanding of digital business models, which are important in the modern business environment. Despite challenges such as poor infrastructure, bureaucracy, and corruption, ICT remains a crucial factor in supporting business development.

Similarly, Felix (2010) examined the relationship between ICT adoption, innovation, and business performance. Their study found that firms that combine ICT usage with technological innovation experience improvements in productivity and organizational performance. The study further revealed that SMEs can obtain greater benefits from investments in ICT because technology supports efficiency, faster communication, and improved management systems. These findings positively influence the perception of SME owners toward ICT tools because many entrepreneurs believe that technology can strengthen business operations and competitiveness.

Furthermore, Janejira & Ann (2006) argue that ICT adoption and assimilation are critical factors for improving competitiveness among SMEs. The authors emphasize that understanding the benefits, challenges, and strategies related to ICT adoption can increase confidence among SME owners and encourage them to adopt technology in their businesses. ICT enables SMEs to access international markets, improve customer relationships, and increase operational efficiency. Therefore, many business owners perceive ICT as an opportunity for business expansion and sustainability.

In the context of Morogoro, the perception of SME owners toward ICT tools is generally positive. Many entrepreneurs recognize the importance of mobile phones, computers, internet services, social media platforms, and electronic payment systems in improving business performance. ICT tools help SMEs improve communication with customers, manage records efficiently, advertise products online, and increase productivity. According to Anis & Aliimran (2018), ICT adoption improves communication between businesses and customers, enhances information sharing, strengthens teamwork, and increases the visibility of business services. As a result, many SME owners believe that ICT tools are beneficial for achieving business success and maintaining competitiveness.

Moreover, SMEs play an important role in economic development, employment creation, and social stability. However, SMEs continue to face several challenges related to ICT adoption. Gumus and Kutahyalı (2017) identified low technological capability and limited ICT penetration as major obstacles affecting SMEs. The authors noted that government programs and incentives were insufficient to support SMEs in overcoming technological challenges. Lack of access to ICT affects the efficiency and productivity of firms and limits their ability to compete effectively. Therefore, the authors recommend that governments provide affordable consultancy and ICT support services to SMEs to encourage technology adoption.

Thus, many SME owners in Mvomero District perceive ICT tools as easy to learn and useful for improving business operations. Entrepreneurs use social media platforms such as WhatsApp, Facebook, and Instagram to advertise products and communicate with customers. They also use mobile money services such as M-Pesa and Tigo Pesa for receiving payments and conducting business transactions. According to Felix (2010), many SME owners are willing to adopt new technologies because they

believe ICT contributes positively to business growth, efficiency, and customer satisfaction.

2.2.4. 2.4. Challenges that small and medium enterprises face in adopting ICT tools

SMEs face several challenges in adopting and implementing Information and Communication Technology (ICT) tools. Although ICT tools are important for improving productivity, communication, and competitiveness, many SMEs, especially in developing countries, continue to struggle to fully adopt these technologies. According to Denen (2016), SMEs contribute significantly to employment creation, production, and poverty reduction in many African countries. However, SMEs are affected by globalization and increased competition, which require them to improve efficiency and business performance through ICT adoption. The study explains that ICT can improve resource allocation, reduce transaction costs, and enhance productivity. Despite these benefits, SMEs in many African countries, including South Africa, face challenges such as poor management practices, limited access to technology, inadequate education, poor ICT infrastructure, unemployment, and limited access to credit facilities. These challenges slow the adoption and integration of ICT tools in business operations.

Furthermore, Naveen & Nethravathi (2023) analyzed factors affecting ICT adoption among SMEs and found that ICT tools can help firms become more innovative, effective, and competitive. However, the study identified several barriers that hinder successful ICT adoption, including lack of strategic vision, poor management skills, outdated technological infrastructure, unfavorable business environments, bureaucratic procedures, and difficulties in finding skilled workers. The study also explains that some SME owners have negative perceptions toward ICT tools because they believe technology is difficult to use, expensive, and not beneficial to their businesses. Lack of ICT skills, insufficient training, and fear of technology reduce the perceived usefulness and ease of use of ICT tools, resulting in low adoption rates among SMEs. Many studies have examined the challenges of ICT adoption in manufacturing enterprises and other SMEs. Charles (2012) investigated ICT adoption among SMEs in southern England and found that businesses mainly adopt ICT tools to meet specific organizational needs. However, the study identified several barriers to ICT adoption, including the high cost of ICT tools, lack of managerial and technical skills, limited understanding of emerging technologies, shortage of skilled employees, security concerns, and inadequate financial resources. These challenges limit SMEs' ability to integrate advanced ICT systems into their business processes.

Similarly, Kelly (2010) argued that increasing employees' knowledge and skills through ICT training can help firms improve technology adoption and business growth. The authors emphasize that lack of training and inadequate technical knowledge remain major obstacles affecting ICT implementation in SMEs. The study further suggests that integrating ICT into business activities such as finance, advertising, communication, and personnel management can improve organizational performance and reduce operational challenges. SMEs face challenges in adopting ICT tools is resistance from employees due to fear of job insecurity. The introduction of new technologies often requires workers to upgrade their skills and adapt to modern systems. As a result, some employees perceive ICT adoption as a threat to their jobs and become resistant to technological changes. In addition, inadequate ICT infrastructure and low awareness regarding the benefits of technology continue to discourage SMEs from integrating ICT into their operations. Limited interest in adopting technology and lack of understanding of effective ICT usage also contribute to slow adoption rates among SMEs.

According to Wolf (2001), the development of SMEs in Nigeria has been negatively affected by government neglect, poor infrastructure, and inadequate ICT support. The study highlights that major factor influencing ICT adoption include poor infrastructure, high costs of purchasing computer equipment, limited government support, and weak management support. These factors reduce SMEs' ability to invest in technological systems and modern business tools. Also, reported that lack of financial resources, unstable electricity supply, insufficient skilled ICT personnel, and low government support are among the major challenges hindering ICT adoption among SMEs. In many developing countries, unreliable electricity and internet services make it difficult for businesses to effectively use ICT tools in daily operations. Limited financial capacity also prevents SMEs from purchasing modern technologies and maintaining ICT systems.

3. RESEARCH METHODOLOGY

3.1. Research Design

According to Silvia and Stefania (2011), This study employed the mixed research design, integrating both qualitative and quantitative approaches to examine the impact of ICT tools use on SMEs in Mvomero District. The quantitative approach enabled the collection of numerical data on ICT usage and business performance, while the qualitative approach provided deeper insights into the experiences and perceptions of SME owners regarding the use of ICT tools. The combination of these approaches enhanced the comprehensiveness and reliability of the study findings.

3.2. Study Area

According to Idiseemi and Ann (2010), This study was conducted in Mvomero District, Morogoro Region, Tanzania. The area was selected because it has a large number of SMEs that use Information ICT tools in their business activities. This provided a suitable environment for assessing the impact of ICT tools on SME performance.

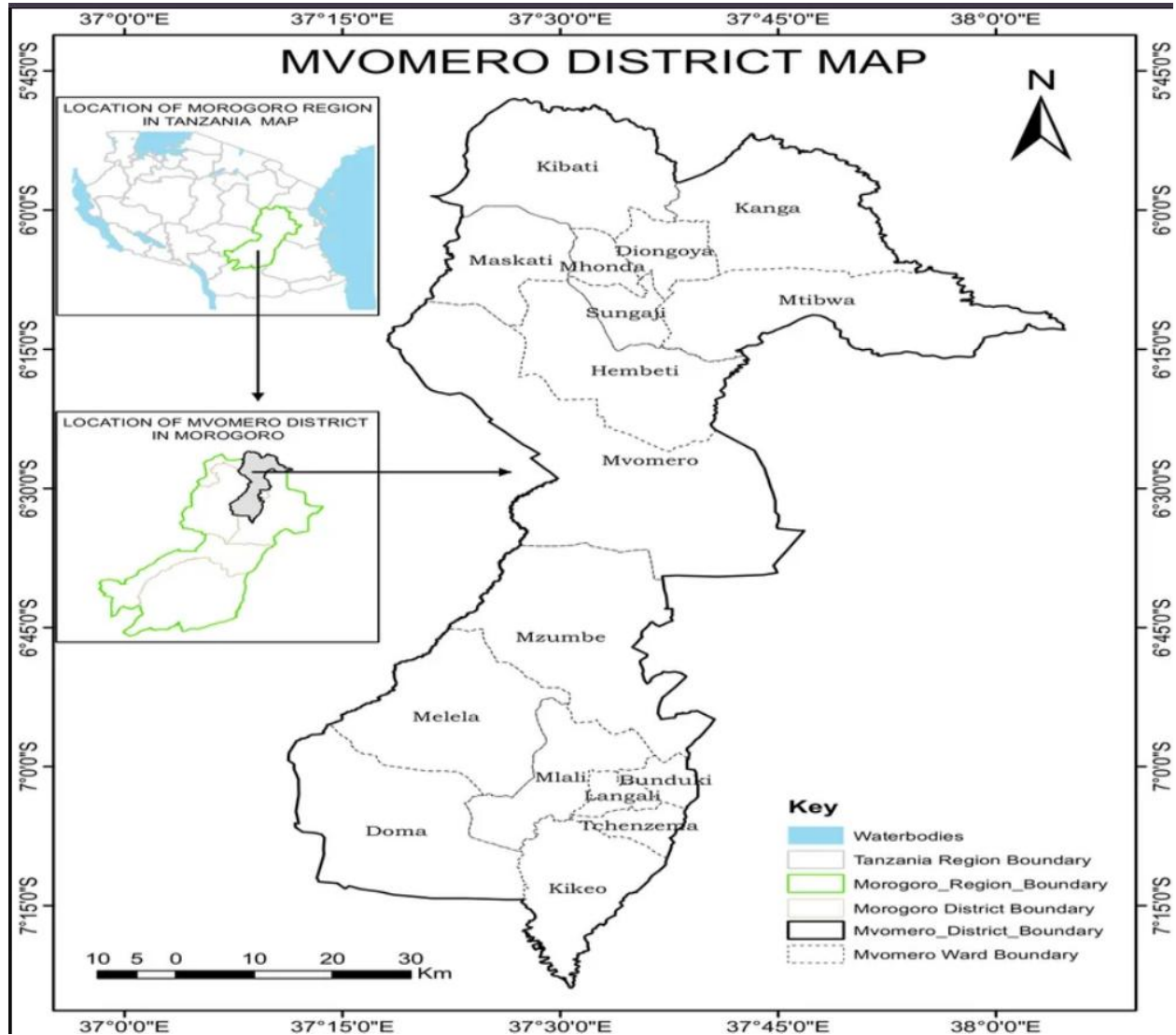


Figure 2: Map showing study area of Mvomero district

3.3. Target Population

According to Onyedimekwu and Oruan (2013), In this study, the target population consisted of business owners, managers, and employees of Small and Medium Enterprises (SMEs) operating in Mvomero District, Morogoro Region. The study targeted a total population of 800 respondents, comprising 200 business owners, 200 managers, and 400 employees. These groups were selected because they are directly involved in the adoption and use of ICT tools within SMEs and can provide relevant information regarding their impact on business performance.

Table 2:

Summary of Target population

Category	Population	Size
Business owners	200	65
Managers	200	65
Employees	400	130
Total	800	260

3.4. Sampling Techniques and size

According to Domenico (2008), This study employed simple random sampling to select respondents from the target population. The technique was chosen because it provides each member of the population with an equal chance of being selected, thereby reducing bias and enhancing the reliability of the study findings. A precise sample size determination is essential in research because it ensures that the selected sample adequately represents the population. Therefore, this study adopted the National Education Association (NEA) formula to determine the required sample size.

The NEA formula is expressed as: $S = X^2NP(1-P) \div d^2(N-1) + X^2 P(1-P)$,

Where:

S = Required sample size

X² = Table value of chi-square for 1 degree of freedom at the desired confidence level (3.841)

N = Population size (800)

P = Population proportion (0.50)

d = Degree of accuracy (0.05)

Therefore, the sample size was approximated to **260 respondents**. Consequently, the study involved 260 respondents selected from business owners, managers, and employees of SMEs in Mvomero District, Morogoro Region.

3.5. Data collection Methods

According to Christian and Stefan (2013), this study employed questionnaires and interview to gather information. Questionnaires were administered to business owners, managers, and employees of SMEs in Mvomero District, and they included both closed-ended questions and open-ended questions, while interviews were conducted with selected respondents to gather detailed and in-depth information regarding the use of ICT tools and their impact on SMEs.

3.6. Data analysis Procedures

According to Isma (2015), In this study, all quantitative data collected from questionnaires were coded, entered, and analyzed using the Statistical Package for Social Sciences (SPSS). The analysis generated descriptive statistics such as frequencies, percentages, and means, and the results were presented using tables and charts to facilitate interpretation. Qualitative data from interviews were summarized and organized according to study themes to support the quantitative findings.

3.7. Ethical considerations

This study observed ethical principles in the use of Information Technology (IT) during data collection and analysis. Permission to conduct the study was obtained from relevant authorities, and informed consent was sought from all participants before data collection. The use of ICT tools ensured secure handling and storage of data to protect respondents' information. Confidentiality was maintained, and all data were used strictly for academic purposes only.

4. FINDINGS AND DISCUSSION

4.1. Demographics and so-Economic Characteristics of Respondents

This section presents the demographic and socio-economic characteristics of the respondents, including ward of residence, gender, age, level of education, working experience, and role in SMEs. The information helps to describe the background of the participants and provides a clear understanding of the composition of the study sample in Mvomero District.

Table1:

Demographic and Socio-Economic Characteristics of Respondents in Mvomero District

Variable	Category	Frequency(N)	Percentage (%)
Wards	Mlali	20	25
	Mzumbe	20	25
	Bunduki	20	25
	Dakawa	20	25
	Total	80	100%
Gender	Male	48	60
	Female	32	40
	Total	80	100%
Age	18-25	15	18.8
	26-35	30	37.5
	36-45	25	31.3
	46 and above	10	12.5
	Total	80	100%
Level of Education	Primary	20	25
	Secondary	35	43.8
	University	25	31.2
	Total	80	100%
Working Experience	1-2 years	18	22.5
	3-5 years	30	37.5
	6-10 years	22	27.5
	Above 10 years	10	12.5
	Total	80	100%
Role in SMEs	Business owner	20	25
	Manager	20	25
	Employee	40	50
	Total	80	100%

4.2. Types of ICT tools used in SMEs

The first objective of this study was to identify the types of ICT tools used by Small and Medium Enterprises (SMEs). As shown in Table 2 below, to gain insights into the ICT tools utilized by SMEs, a survey was conducted in which participants responded to five statements, each rated on a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree).

Table 2:

Types of ICT tools used in SMEs

Items	Strong Agree		Agree		Neutral		Disagree		Strong Disagree		Mean
	n	%	n	%	n	%	n	%	n	%	X
Social media	36	42.9	30	35.7	6	7.1	8	9.5	4	4.8	4.02
Mobile phones	40	44.4	28	31.1	10	11.1	7	7.8	5	5.6	4.01
Cloud computing	20	24.1	25	30.1	8	9.6	18	21.7	12	14.5	3.28
E-commerce platforms	22	26.2	30	35.7	4	4.8	16	19	12	14.3	3.40
Computers	38	42.2	27	30	10	11.1	10	11.1	5	5.6	3.92

The results presented in Table 2 indicate that social media (mean = 4.02) and mobile phones (mean = 4.01) were the most commonly used ICT tools among SMEs, reflecting strong agreement among respondents regarding their use. Computers also recorded a relatively high mean score (mean = 3.92), indicating their importance in supporting business operations. Meanwhile, e-commerce platforms (mean = 3.40) and cloud computing (mean = 3.28) showed moderate levels of utilization. Overall, the findings suggest that SMEs have positively embraced ICT tools, particularly social media, mobile phones, and computers, in enhancing communication and business efficiency.

4.3. Uses of ICT tools in SMEs

This section presents the findings on the uses of ICT tools in SMEs. Respondents were asked to indicate their level of agreement with statements regarding the contribution of ICT tools to business operations using a five-point Likert scale.

Table 3:

Uses of ICT tools in SMEs

Uses of ICT tools	Strong Agree		Agree		Neutral		Disagree		Strong Disagree		Mean
	n	%	n	%	n	%	n	%	n	%	x
Improve communication	30	38.6	30	38.5	5	6.4	8	10.3	4	5.1	3.95
Improve efficiency and information management	20	28.6	28	40.0	10	14.3	7	10.0	5	7.1	3.73
Support and marketing and customer relations	33	34.4	29	30.2	20	20.8	9	9.4	5	5.2	3.79
Facilitate financial transactions	25	32.5	25	32.5	15	19.5	8	10.4	4	5.2	3.77
Promote innovations and growth	30	30.0	30	30.0	25	25.0	9	9.0	6	6.0	3.69

The result presented in Table 3 shows that most respondents agreed that ICT tools are important in SMEs. ICT tools were mainly used to improve communication (Mean = 3.95), support marketing and customer relations (Mean = 3.79), facilitate financial transactions (Mean = 3.77), and improve efficiency and information management (Mean = 3.73). ICT tools were also found to promote innovation and business growth (Mean = 3.69). Overall, the findings indicate that ICT tools play a significant role in enhancing SME performance and operations.

4.4. Perceptions of SMEs owners towards ICT tools

The third objective of this study was to assess the perceptions of Small and Medium Enterprises (SMEs) towards the use of ICT tools. As shown in Table 4 below, to gain insights into SMEs' perceptions regarding ICT tools, a survey was conducted in which participants responded to four statements, each rated on a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree).

Table 4:

Perceptions of SMEs owners towards ICT tools

Perceptions of SMEs	Strong Agree		Agree		Neutral		Disagree		Strong Disagree		Mean
	n	%	n	%	n	%	n	%	n	%	x
ICT tools improve business communication	40	46.5	30	34.9	6	7.0	6	7.0	4	4.6	4.12
ICT tools increases productivity	38	42.7	32	36.0	9	10.1	6	6.7	4	4.5	4.06
ICT tools help SMEs access wider markets and customers	36	40.0	31	34.4	10	11.1	9	10.0	4	4.4	3.96
ICT tools improve satisfactions	20	21.7	25	27.2	12	13.0	22	23.9	13	14.1	3.18

The results show that respondents had positive perceptions towards ICT tools. Most agreed that ICT tools improve business communication (Mean = 4.12), increase productivity (Mean = 4.06), and help SMEs access wider markets and customers (Mean = 3.96). However, respondents showed relatively lower agreement that ICT tools improve customer satisfaction (Mean = 3.18). Overall, the results indicate that SMEs perceive ICT tools as beneficial to business performance and growth.

4.5. 5. Challenges that small and medium-sized enterprises face in adopting ICT tools

The fourth objective of this study was to identify the challenges faced by Small and Medium Enterprises (SMEs) in the adoption of ICT tools. As shown in Table 5 below, to gain insights into these challenges, a survey was conducted in which participants responded to five statements, each rated on a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree).

Table 5:

Challenges do small and medium Enterprise's face in adoption of ICT tools

Challenges of SMEs	Strong Agree		Agree		Neutral		Disagree		Strong Disagree		Mean
	n	%	n	%	n	%	n	%	n	%	
High cost of ICT tools and implementation	42	49.4	20	23.5	15	17.6	6	7.1	2	2.4	4.11
Lack of ICT skills and inadequate training	40	40.8	25	25.5	25	25.5	5	5.1	3	3.1	3.95
Poor ICT infrastructure	38	35.2	28	25.9	30	27.8	8	7.4	4	3.7	3.81
Resistance to change from employees	30	30.2	25	25.0	30	30.0	10	10.0	5	5.0	3.65
Limited financial resources for ICT investment	44	43.1	30	29.4	20	19.6	6	5.9	2	2.0	4.06

The Table 5 indicates that SMEs face several challenges in adopting ICT tools. The major challenges identified were the high cost of ICT tools and implementation (Mean = 4.11), limited financial resources for ICT investment (Mean = 4.06), and lack of ICT skills and inadequate training (Mean = 3.95). Respondents also agreed that poor ICT infrastructure (Mean = 3.81) and resistance to change from employees (Mean = 3.65) hinder the adoption of ICT tools. Overall, the findings suggest that financial constraints and inadequate ICT capabilities are the main barriers to ICT adoption among SMEs.

5. CONCLUSION AND RECOMMENDATION

5.1. Conclusion

Based on the major findings, the study concludes that respondents mainly rely on basic ICT tools such as mobile phones, internet browsing, and e-mail services for their daily activities. However, the availability of other ICT resources in the Department of Business Education is limited, which restricts wider use of technology. In addition, several challenges hinder the effective use of ICT tools among respondents. Therefore, although ICT is in use, its full potential has not been realized due to limited access and existing constraints.

5.2. RECOMENTATION

Based on the identified weaknesses, the study recommends that the Government and other relevant stakeholders should improve ICT infrastructure, including reliable internet connectivity and electricity supply, to support effective ICT adoption among SMEs. It is also recommended that financial institutions provide affordable loans and financial support to enable SMEs to acquire modern ICT tools and technologies. In addition, regular ICT training programs should be provided to SME owners and employees to improve their digital skills and increase the effective use of ICT tools in business operations. Finally, SME owners and business support organizations should address the challenges affecting ICT adoption by promoting awareness, investing in modern technologies, and encouraging the use of advanced ICT solutions to improve business performance and competitiveness.

REFERENCES

- Timothy, C. & Joshua, R. A (2016). The impact of leadership on small business innovativeness, *Journal of business Research*, pp. 4876-4881
- Asta, T & Rimantas, G (2013). ICT impact on SMEs performance, *Contemporary Issues in Business, Management and Education*, pp. 1218-1225
- Samuel, O. M (2012). The Adoption of Information and Communication Technology by Small Enterprises in Thika Municipality, Kenya: *International Journal of Business and Social Science*, Vol. 3 No. 13, pp. 172-177
- Carol, E. P & Monica, M. (2013). Exploring impact of Aligning Business and its strategy types on performance in small firms, *Journal of small Business strategy*, vol. 25, No. 1, pp.27-45
- Denen, D. N & Abdul, J (2016). Challenges of Adopting information and communications Technology By small and medium Enterprises in Nigeria, *Journal of Multidisciplinary Engineering Science and Technology*, vol. 3, issue 1, pp. 3766-3776
- Celina, S.B (2018). The use and benefits of information communication technology by polish small and medium size enterprises, *online journal of Applied knowledge management*, vol. 6, issue 1, pp. 211-225
- Wolf, S. (2001). Determinants and impact of ICT use for African SMEs implications for rural South Africa, *Trade and Industry Policy Strategies*, 2001 Annual Forum. Misty Hills, Muldersdrift.
- Beckinsale, M., M. Levy, and P. Powell. (2006). Exploring Internet Adoption Drivers in SMEs, *Electronic Markets* 16(4): 361-370
- Modimogale, L.&Kroeze, J. (2009)."Using ICTs to Become a Competitive SME in South Africa,"*Proceedings of the13th International Business Information November 2009, Marrakech, Morocco,p Management Association (IBIMA),504-513.*
- Ion, P. and Andrea. (2008), "Use of ICT in SMES management with in the sector of services", *The Journal of the Faculty of Economics – Economic*, Vol.4No. 1, pp.481- 487.
- Ashrafi. and Murtaza, M. (2008), "Use and Impact of ICT on SMEs in Oman",*Electronic Journal Information Systems Evaluation*, Vol.11No.3, pp.125-138.
- Nasser saif Al Busaid et. Al. (2019). ICT Adoption and SME Growth in New ZeaLand" *Journal of American Academy of Business*, 4 (1/2), 93-102
- Peter, K. & Michael, B. (2015). Cloud computing as a facilitator of SME entrepreneurship, *Technology Analysis & Strategic Management*, 27:1, 87-101, DOI: 10.1080/09537325.2014.951621
<https://doi.org/10.1080/09537325.2014.951621>
- Gregor, J.& Valerij, D. (2015). ICT tools for the development of Entrepreneurial competence, *Technology, innovation and industrial Management*, pp. 2123-2129;
- Michael, H. & Uwe, L. (2015). Mobile Business with smartphones and Tables: Effects of Mobile Devices in SMEs, *Associations for Information Systems*, pp. 290-305
- Domenico C. (2008). The global market of small Businesses By e-commerce platforms, *IT in social science*, pp. 967-974
- Isma, A. (2015). Use of social media as a Media promotion for small Enterprises, *Information Management and Business Review (ISSN 2220-3796)*, Vol. 7, No. 4, pp. 33-41
- Rachitha, D. & Anjusree, K. (2023). The Effective implementation of ICT tools in business, *The online Journal of Distance Education and e-learning* vol. 11, No. 1(939-945)
- Ikwuazom, C. T. and Ogwueleka, F. N. (2002). Effectiveness of Electronic meeting anSd video conferencing Tools and Techniques, *Journal of the Association for information sciences*, pp. 1-42
- Christian, M. & Stefan, S. (2013). Adoption and use of social media in Small and Medium-Sized Enterprises, *Information Technology and society*, pp. 61-75
- Taimur, A. (2016). "Exploring the Usage of the Mobile Phones by SMEs in the Achievement of Vision 2020 Goals," *Journal of Mobile Technologies, Knowledge, and Society*, Vol. 2016 (2016), Article

ID 218958, DOI: 10.5171/2016.741807

<http://www.ibimapublishing.com/journals/JMTKS/jmtks.html>

- Victoria, L. (2003). ICT in Infrastructure: Hardware, Networking, Software, and Connectivity”, in Haddad, W. and A. Drexler (eds). Technologies for Education: Potentials, Parameters, and Prospects. Washington DC: Academy for Educational Development and Paris: UNESCO
- Ajuzie, N. & akukwe, A. (2015). An assessment of the use of ICT tools by students to the study of business education, International Letters of Social and Humanistic Sciences, ISSN: 2300-2697, Vol. 55, pp 7-12 doi: 10.18052/www.scipress.com/ILSHS.55.7
- Margaret, S. A. & Law, O. & Oyinkansola, L. (2017). Evaluation of social media as Promotional Tools for Small and Medium Enterprises (SMEs) in Yaba, Lagos State, Nigeria: Journal of Marketing and Consumer Research ISSN 2422-8451, Vol.41
- Onyedimekwu, O. & Oruan, M. (2013). Factors Influencing the Adoption and Use of ICT by Small and Medium Sized Enterprises in Nigeria, international conference on science, technology, education, arts, management & the social sciences, pp. (1-14)
- Okoro, O. J. & Yacob, H. & Otuza, E. C. (2021). Influence of ICT use on business performance of small and medium enterprises in port-harcourt Nigeria, Library Philosophy and Practice (e-journal). 6176.
<https://digitalcommons.unl.edu/libphilprac/6176>
- Celina, S. B. (2018). The use and benefits of information communication technology by Polish small and medium sized enterprises, Online Journal of Applied Knowledge Management Volume 6, Issue 1, pp. 211-225
- Paul, T. (2015). The importance of Information and Communication Technologies (ICTs): an integration of the extant literature on ICT adoption in small and medium enterprises, International Journal of Economics, Commerce and Management, Vol. III, Issue 5, ISSN 2348 0386
- Billal, H. & Nargis D. & Aslan, A. S. & Csaba, B. I. (2023). Evaluating the utilization of technological factors to promote e-commerce adoption in small and medium enterprises, Electronic Commerce Research (2025) 25:349–368
<https://doi.org/10.1007/s10660-023-09692-7>
- Shahram, G. & Nahid, O. (2012). The Role of ICT in Performance of Small and Medium Enterprises, interdisciplinary journal of contemporary research in business, Vol 3, No 9, pp. 833-839
- Mihaela, F. T (2014). SMEs perception on cloud computing solutions, Emerging Market Queries in Finance and Business, pp. 514-521
- Felix T. C. (2010). A Perception-Based Model for Technological Innovation in Small and Medium Enterprises, Association for Information Systems, pp. 1-3
- Janejira, S. & Ann, M. P. (2006). E-Commerce Adoption: Perceptions of Managers/Owners of Small- and Medium-Sized Enterprises (SMEs) in Thailand, Journal of Internet Commerce, 5:3, 53-82, DOI: 10.1300/J179v05n03_03
https://doi.org/10.1300/J179v05n03_03
- Anis, N. R. & Aliimran, N. & Mohd Izhar A. Bakar (2018). The Perception of ICT Adoption in Small Medium Enterprise: A SWOT Analysis, International Journal of Innovation and Business Strategy (IJIBS)/ Vol. 9, No. 1, pp. 69-79
- Gümüş, N & Kütahyalı, D. (2017). Perceptions of social media by Small and Medium Enterprises (SMEs) in Turkey, International Journal of Business and Information, pp. 123-148
- Denen, D. & Abdul, J. & Henry, O. (2016). Challenges Of Adopting Information and Communications Technology by Small and Medium Enterprises in Nigeria, Journal of Multidisciplinary Engineering Science and Technology, Vol. 3 Issue 1, pp. 3766-3776
- Naveen, D. C & Nethravathi, P. S (2023). Analysis of challenges faced during Adoption of ICT by small and medium Enterprises in India, International Journal of Management, Technology and social science, ISSN:2581-6012, Vol. 8, No.2, pp. 1-21
- Charles, A. & Frank, S. (2012). The impact of Information and Communication Technologies (ICT) on Small and Medium Scale Enterprises (SMEs) in the Kumasi, European Journal of Business

- and Management, ISSN 2222-1905, Vol 4, No.20, pp. 152-158
- Kelly, B. (2010). The Impact of Internet and ICT Use among SME Agribusiness Growers and Producers, *Journal of Small Business & Entrepreneurship*, 23:2, 173-194, DOI: 10.1080/08276331.2010.10593480
<https://doi.org/10.1080/08276331.2010.10593480>
- Wolf, S, D. Hamblin, S. Stanek and H. Sroka et al., 2001. Addressing ICTs skill challenges in SMEs: Insights from three country investigations. *J. Eur. Ind. Traizning*, 26: 430-44
- Filip, P. & Vanessa, P. & Peter, K. & Milos C (2023). Application of Selected Digital Enterprise Tools in Small and Medium-Sized Industrial Enterprises, *International Journal of Smart Business and Technology* Vol.11, No.1, pp. 59-70.
<http://dx.doi.org/10.21742/ijstb.2023.11.1.04>
- Silvia, M. & Stefania, T. (2011). A framework to conceptualize KMSs in small and medium enterprises, *The journal of information and knowledge management systems* Vol. 41 No. 4, pp. 483-504
- Idisemi, A. & Ann, L. (2010). Benefits of information and communication technology in small and medium sized enterprises: a case study of a Nigerian SME. *Association for Information Systems AIS Electronic Library*, pp. 1-19
- Onyedimekwu, O. & Oruan, M. (2013). Factors Influencing the Adoption and Use of ICT by Small and Medium Sized Enterprises in Nigeria, *international conference on science, technology, education, arts, management & the social sciences*, pp. 1-14
- Domenico C. (2008). The global market of small Businesses By e-commerce platforms, *IT in social science*, pp. 967-974
- Christian, M. & Stefan, S. (2013). Adoption and use of social media in Small and Medium-Sized Enterprises, *Information Technology and society*, pp. 61-75
- Isma, A. (2015). Use of social media as a Media promotion for small Enterprises, *Information Management and Business Review* (ISSN 2220-3796), Vol. 7, No. 4, pp. 33-41
- Tornatzky L., & Fleischer, M (1990). *The Process of Technology Innovation*. Lexington, MA
Lexington: Lexington Book
- Barua, A., Konana, P., Whinston, A. B., & Yin, F. (2004). Assessing internet enabled Business Value: An Exploratory Investigation. *MIS Quarterly*, 28(4), 585-620
- Hong, W. Y. & Zhu, K. (2006). Migrating to internet-based E-commerce: Factors affecting E-commerce Adoption and Migration at the Firm level. *Information and Management*, 43(1),472-484
- Cesaroni, Consoli, & Sentuti, (2011); Premkumar, (2003); Salmeron & Bueno (2006): The adoption of ICT in small and medium sized Family Business: The role of Younger Generation. *Timisoara Journal of Economics*, 42(14), 67-80
- Nguyen, T. U. H (2009). Information Technology Adoption in SMEs: An integrated framework. *International Journal of Entrepreneurial Behaviour and Research*, 15(2),162-186
- Ghobakhloo, Sabouri, Sai Hong, & Zulkifli, (2012). Strategies for successful information Technology Adoption in small and medium sized Enterprises. *Information*,3(1),36-67
- Lee & Xia, W. D (2006). Organizational size and IT innovation Adoption: A meta-analysis. *Information & management*, 43(8), 975-985
- Oliveira, T. & Martins, M.F (2010). Firms' patterns of E-business Adoption: Evidence for the European union-27. *The Electronic Journal Information Systems Evaluation*, 13(1), 47-56
- Beatty, R. C., Shim, J.P., & Jones, M. C (2001); Lin & Lin, (2008). Factors influencing Corporate Web site Adoption: A Time-based Assessment. *Information & Management*, 38(6), 337-354
- Porter, M. & V.E Millar (1985). How information gives you competitive Advantage. *Harvard Business Review*, 63(4), 149-160
- (Al-Qirim, N (2007); Battisti, Hollenstein, Stoneman, & Woerter, (2007); Grandon & Pearson, (2004). The Adoption of Ecommerce communications and Applications Technologies in small

- Businesses in New Zealand. *Electronic Commerce Research and Applications*, 6(4), 462-473
- Martins & Oliveira, (2008); Mehrtens, Cragg, & Mills, (2001); Premkumar & Roberts, (1999); Thong, (1999). Measuring the productivity of computers: A Firm Level Analysis for Portugal. *Electronic journal of information system evaluation*, 8 (4), 197-204
- Dyerson, R. & Spinelli, R. (2001). Balancing Growth: A conceptual Framework for Evaluating ICT Readiness in SMEs. *International Journal of online marketing*, 1(2), 43-56
- Walsham, G. & Sahay, S. (2006). Understanding the Determinants of RFID Adoption in the Manufacturing industry. *Technological Forecasting and Social change*, 77, 803-815
- Cayla, G., Cohen, S., & Guigon, (2005); Golding, Donaldson, Tennant, & Black, (2008). WIMAX an efficient tool to Bridge the Digital Divide. In proceedings of WIMAX Forum, November
- Parker, C.M. & Castleman, T. (2009). Small firm E-business Adoption: A critical Analysis of Theory. *Journal of Enterprise Information Management*, 22(1), 167-182
- Rogers, E. M (1995). *Diffusion of innovations* (4th Ed.). New York: Free press
- Modimogale, L. & Kroeze, J. (2009). "Using ICTs to Become a Competitive SME in South Africa, "Proceedings of the 13th International Business Information November 2009, Marrakech, Morocco, p Management Association (IBIMA), 504-513.
- Ashrafi. and Murtaza, M. (2008), "Use and Impact of ICT on SMEs in Oman", *Electronic Journal Information Systems Evaluation*, Vol. 11 No. 3, pp. 125-138.
- Ongori, H. and Migiro, S.O. (2010). Information and communication Technologies Adoption in SMEs: Literature Review, *Journal of Chinese Entrepreneurship*, vol. 2 No 1. pp 93-104
- Ion, P and Andreea, Z (2008). Use of ICT in SMEs Management within the sector of services, *The Journal of the Faculty of Economics -Economic*, Vol. 4 No. 1. Pp 481-487
- Carr, N. G (2004). IT Doesn't Matter. *IEEE Engineering Management Review*, 32(1), 24-32
- Hoffman, N.P. (2000). "An Examination of the Sustainable Competitive Advantage Concept: Past, Present and Future"
- Porter, M.E & Millar, V.E (2001). How Information Gives You Competitive Advantage, "Havard business Review", 63(4), 149-160
- Peppard, J. & Ward, J (2004). Beyond strategic Information Systems: Towards an IS capability, *Journal of strategic Information Systems*, 13(2), 167-194
- Kaur, K. (2023). Teaching and Learning with ICT Tools: Issues and Challenges. *International Journal on Cybernetics & Informatics (IJCI)*, 12(3), 15–22
- Pelgrum, W. J. (2001). Obstacles to the integration of ICT in education: results from a worldwide educational assessment. *Computers & Education*, 37, 163–178.
- Sołek-Borowska, C. (2017). Knowledge creation processes in small and medium enterprises: A Polish perspective. *The Online Journal of Applied Knowledge Management*, 5(2), 61-75.
- Ramsey, E., Ibbotson, P., Bell, J. & Gray, B. (2003). E-opportunities of service sector SMEs: An Irish cross-border study. *Journal of Small Business and Enterprise Development*, 10(3), 250-264.
- Nguyen, T. H. (2009). Information technology adoption in SMEs: An integrated framework. *International Journal of Entrepreneurial Behaviour & Research*, 15(2), 162-186.
- Vidgen, R., Francis, D., Powell, P. & Woerndl, M. (2004). Web service business transformation: Collaborative commerce opportunities in SMEs. *Journal of Enterprise Information Management*, 17(5), 372-381.