

# The influence of information and communication technology on the business performance of the incubated small business enterprises in Tanzania.

## ABSTRACT

This study analyzed the influence of information and communication technology (ICT) on the business performance of incubated small business enterprises (SBEs) in Tanzania. The purposive sampling and structured questionnaire were employed to fifty SBEs incubated at the Tanzania Engineering and Manufacturing Development Organization (TEMDO) incubation center from the population of incubated SBE's in various government institutions namely as Small Industries Development Organization (SIDO) Centre of Agricultural Mechanization and Rural Technologies (CARMMATEC), Tanzania Industrial Research and Development Organization, (TIRDO) and Tanzania Commission for Science and Technology (COSTECH) . Statistical Package for Social Science was used for data analysis. The study established that ICT increases SBE's market access through information accessibility (70%), market share (80%), promotion strategies (88%) and financial conveniences (74%). Besides, SBEs may increase the operation outputs upon having conducive business environment (64%), minimize business barriers (78%), increase speed to market (72%) and business efficiency (50%). Moreover, SBEs with aid of ICT have high chance of increase business profit through increasing sales volume (76%), income level (82%), profit margin (60%) and liquidity level (52%). However, the observed low rating on business efficiency and liquidity due to factors related to availability and affordability of ICT infrastructure, must be addressed for substantial influence of ICT in SBEs business performance.

*Key words: Small Business Enterprises (SBEs), Information and Communication Technology (ICT), Tanzania.*

## 1.0 INTRODUCTION

Small- and medium-sized enterprises (SMEs) are important to the economy but vulnerable to changes in their environment (Haneberg, 2021). In Tanzania for instance, Rashid and Leonard (2004) argued that Small Business Entrepreneurship has been seen as a hub in generating income for the majority of urban dwellers with no formal paid employment. According to Rashid and Leonard (2004) and Leslie (1967) it is established that in Tanzania, Dar es Salaam in particular, the question of entrepreneurship and small business especially itinerant trading were evident even during colonial period. Hawking and peddling were, the standard expedients of those unable to find paid employment. Few of these petty traders were licensed: the casual peddlers, observed Leslie, seldom bother to comply with the law. Despite the obvious inefficacy of municipal policy, the attempt to control itinerant trading through restricting the number of licences persisted. Unlicensed hawkers continued to be apprehended and taken to court.

Ward (2005) depicted that there is no universal definition for SMEs since the definition depends on who is defining it and where it is being defined. SME is defined differently by various scholars and countries and continents depending on the phase of economic development and their prevailing social conditions which associate it with the number of employees, invested capital, total amount of assets, sales volume (turnover) and production capability (Osotimehin, et al, 2012). For example, in Canada SME is defined as an enterprise that has fewer than 500 employees and small enterprise as one that has less than 100 employees. On the other hand, the World Bank defines SMEs as having no more than 500 employees. Gilaninia et al., (2012) on their perspective in line with European Union considers them as firms which have less than 250 employees with the annual turnover which does not exceed 50 million euros, and their annual balance sheet total is less than

43million euros.

The situation is different in developing countries, for instance in Tanzania the Tanzania National SME policy (2003) considered SBEs as small and Medium Enterprises (SMEs) or micro, small and medium enterprises (MSMEs). In most cases these small enterprises are made up of 4 people, with the capital ranging up to Tshs.5 million and most of them are falling under informal sector while small enterprises are formalized and having between 5 and 49 employees, with capital amounting from Tshs.5 million to Tshs.200 million and medium enterprises hire between 50 and 99 people with the capital from Tshs.200 million to Tshs.800 million.

The history of SBEs establishment in Tanzania comes a very long way. Rutashobya, Chijoriga & Ishengoma (2014) pointed out that Tanzania has gone through a period of deep change since the late 1980's after her move to abandon monopolistic policies under the command approach to economic management. This attract establishment of the SBEs. However, entry into small business entrepreneurship in Tanzania is usually not seen as a problem. Therefore, one can start small business at any time and in any place. With reference to Mfaume and Leonards (2004) and Kuzilwa, (2003), most people enter into small business because of lack of adequate education and difficulty of finding formal employment. There are very few who were formerly employed engages in small business due to various reasons including retrenchment.

Various efforts were taken towards formalizing the SBE's and increase their effectiveness, one of them being establishment of business incubation center in several government institutions mainly via the Ministry of Investment, Trade and Marketing. Based on Lose (2016) and Ndabeni (2008), the business incubations can be defined as organizations that provide and facilitate a protected environment to start- up and existing businesses by providing a comprehensive range of shared services with the aim to minimize start-up failure. Grimaldi and Grandi, (2005) depicted that business incubators facilitate the development of SMEs in the regions, reducing the probability of failure and speeding up the process of business creation by offering infrastructures and facilities to the incubated enterprises. According to Tötterman and Sten, (2005) the primary reason for beginning and emerging SMEs to join an incubator is to build competitive enterprises and to connect and network within their community.

Pertaining the current information on application of in Business, Chang, Younghoon; Siew Fan Wong; Park, Myeong-cheol (2014) reported that digital divide is one of the most concerning issues today. It positions those who 'have-no' access to technology at disadvantage socially and economically. The key to reduce digital divide is to provide access to basic technology and information content .From the socio-economic perspective, ICT development is a salient component that underlies the growth of a society ad depicted in Frieden (2005). In the context of this study, ICT, encompassing modern technology that is used to aid the electronic capture, processing, storage and dissemination of information, whether in numerical, textual, audio or visual format, is an important driver for social and economic development, global participation and competitiveness, and ultimately, growth as also stipulated in Ponelis & Holmner (2015). ICT and e-business applications provide many benefits across a wide range of intra- and inter-firm business processes and transactions. ICT applications improve information and knowledge management inside the firm and can reduce transaction costs and increase the speed and reliability of transactions for both business-to-business (B2B) and business-to-consumer (B2C) transactions. In addition, they are effective tools for improving external communications and quality of services for established and new customers (OECD, 2004).

According to Sarkar (2012) ICT is divided into two components, information and communication infrastructure (ICI), which refers to physical telecommunication systems and network, and the services that utilize those (internet, voice, mail, radio, Television) and information technology (IT) that refers to the hardware and software of information collection, storage, processing and presentation. ICT is also believed to be the new ways in which people can communicate, inquire, make decision and solve problems. It is the processes, tools and techniques for gathering and identifying information, classifying and organizing; summarizing and synthesizing, analysing and evaluating, speculating and predicting, by so doing it is believed to affect performance of the business. Based on Matambalya and Wolf (2001) the ICT as information channel allows the immediate transmission of large volumes of information and permits communication independent of the physical movement of individuals. In the contest of ICT, business may also use marketing information system to understand the customers' needs , meet their requirements, successful implementation of marketing plans as well as assists them to avoid market threats and exploit market opportunities for gaining competitive advantages as depicted in Plomaritou & Patsiouras (2020).

Various authors defined business performance in different context but almost all of them have common features related to market share, growth, sales revenue, number of employees and number branches; survival, sustainability, stability, profitability, job generation as well as level of efficiency and innovation or level of human capital development as a revealed in Shane (2003). All these variables of business performance depends much on educational and entrepreneurial skills (Nakhata, 2018). Moreover, Mutandwa, Taremwa, and Tubanambazi (2015) argued that three major factors that determined the performance of SMEs are marketing and entrepreneurship skills, working environment and materials and infrastructure availability. Thus, future policy interventions should consider these strategic areas for enhanced visibility of SMEs. Matambalya and Wolf (2001) consider performance in the perspective of efficiency and productivity in three ways namely as improving efficiency in resource allocation, reducing the transaction costs, and technical improvement, leading to the outward shift of the production function. For the purpose of this study in line with the status of respondents SBEs, the market access, operational outputs and business profit were opted to represent SBEs business performance.

With regard to market accessibility, making reference to Paulina *et al*; (2007), Nyangarika and Ngasa (2020a) companies still fall short of their target, despite advancements in ICT marketing. Information and communication technologies (ICTs) like mobile phones, computers and Intranet are considered important for creating competitive advantage. Despite their rapid deployment rates, only a few studies mainly from the information technology (IT) and engineering literature have been devoted in uncovering the factors that influence the diffusion of new information technologies and their proper use within an organization. Furthermore, Tachiki *et al.*, (2004) cited in Nyangarika and Ngasa (2020a), illustrated that in some cases, communication based on ICT and the Internet specifically can also improve external communication, reducing the inefficiencies resulting from lack of co-ordination between firms, and increasing the speed and reliability of information processing and transfer thus in one way or another will affect business operations.

According to OECD (2004) Information and communication technology (ICT) connectivity (PCs and Internet) is very widespread in businesses of all sizes. As is the case with all technologies, small businesses are slower than large ones to adopt new ICTs. Potential small business benefits and firm and sector-specific strategies drive the adoption and use of ICTs. Furthermore, sectors are increasingly global and dominated by large firms and the structure of their values chains and operations shape opportunities for small and medium size enterprises (SMEs). Principal reasons for non-adoption are lack of applicability and little incentive to change business models when returns are unclear.

Besides, despite the use of ICT by SMEs is increasingly common according to survey for OECD countries, the levels differs between countries especially when it comes to developing world thus, there is crucial need to assess its effectiveness in SBEs performance in such countries, Tanzania being one of them. Furthermore despite the potential benefits of ICT and e-commerce, there is debate about whether and how their adoption improves firm performance. Matambalya and Wolf (2001) claimed that despite the percentage of firms that uses mobile phone is increasing much faster, at least there is little empirical evidence how the diffusion and application of ICTs can be a catalyst for economic competitiveness and growth in developing countries. The question remains now through what channels this improved access to ICT in which will in turn impact on enterprise performance for users and hence economy wide growth especially the small businesses. Thus, critical assessment is needed on that aspects taking into account different level of business enterprises and market segments based on demographic characteristics of SBEs.

In view of that, the main objective of the study was to assess the influence of Information and Communication Technology towards enhancing business performance of small business enterprises in Tanzania. Specifically the study intended to: determine the contribution of ICT in market access of SBEs, find out the role of ICT on SBEs operational outputs; and determine the contribution of ICT on business profitability SBE in Tanzania.

## **2.0 MATERIAL AND METHODS**

A Research design is concerned with turning a research question into a testing project (Robson, 1993). The study used quantitative methods, which included both primary and secondary data. With respect to primary data, the study applied survey approach using questionnaires and observation. The questionnaire instrument was structured with both open and closed

ended questions. On the other hand, secondary data were collected through documentary sources review. The research aimed at reviewing data from Tanzania Engineering and Manufacturing Development Organization (TEMDO) incubation center. On this ground, historical and business performance trend data were reviewed to widening understanding of the researcher and support the primary data.

Pertaining sampling process, this study via purposive sampling techniques covered a sample of 50 SBE's, incubated at the TEMDO's incubation center within the Ministry of Industry and Trade based in Arusha. These were extracted from the population of incubated SBE's in various government institutions namely as Small Industries Development Organization (SIDO) Centre of Agricultural Mechanization and Rural Technologies (CARMMATEC), Tanzania Industrial Research and Development Organization, (TIRDO) and Tanzania Commission for Science and Technology (COSTECH). The respondents were purposely selected on virtual of their positions and roles, which fits in very well for case study consideration. While TEMDO was used as a case study covering the main government role with respect to SME development with respect to offering necessary supporting infrastructure, set up institutions and frameworks which support and strengthen SME initiatives and activities. In line with Saunders, Lewis, & Thornhill (2009) since any sample size above 30 is viewed as suitable for conducting statistical test therefore this choice is considered to be proper and sufficient for purposive sampling.

The quantitative data collected from survey questionnaire were analyzed using the Statistical Package for Social Science in which factor analysis was carried out to regroup the elements of the dimension to come up with small but similar data set. Since the study was aware of the specific variables of business performance and data structure confirmatory factor analysis was used for verification. Moreover, descriptive statistics were used for all variables of demographic characteristics and business performance to ascertain the respondents' perspective on the link between ICT and SBEs business performances.

On the side of secondary data, there were reviewed and critically used to support and supplement the primary data. The aspects of data validity and reliability were also taken into account to ensure research process leads to accurately research findings and consistency as recommended by Patton (2002). Besides, the Cronbach's alpha test was carried out to measure of internal consistency and how closely related a set of items used in each business performance variables are as a group and results being 0.745, 0.767 and 0.701 for market access, operational output and profit respectively, thus based on George & Mallery (2003) were acceptable as there were greater than 7.

### 3.0 RESULTS

#### Demographic characteristics of the respondents

With respect to demographic characteristics of respondents, the current study adopted six variables namely as gender, age, education level, monthly income, occupation, time and experience level on using ICT in their. The results on these aspects are summarized in Table 1.

**Table 1: Summary of demographic information of respondents**

Variable	Percent
Gender	50.0
▪ Male	
▪ Female	50.0
Age	
▪ 18 – 30	50.0
▪ 31 – 50	35.0
▪ Above 50	15.0

Level of Education	
▪ Un educated	0
▪ Primary Education	0
▪ Secondary Education	40
▪ University degree	50.0
▪ Postgraduate degree	10
Average Monthly income range	
▪ T.Shs 500,000 -1,500,000	35.0
▪ T.Shs 1,500,000-2,500,000	55.0
▪ Above T.Shs 2,500,000	10.0
Occupation Status	
▪ Ongoing student	15.0
▪ Self-employed professionals	70.0
▪ Employed	15.0
Duration in business operation	
▪ Less than 1 year	25
▪ 1-2 years	20
▪ 2-3 years	40.0
▪ More than 3 years	15.0

Source: Field data (2016)

### Demographic Satisfaction of Effectiveness of ICT on enhancing business performance

Using the respondents' views and levels of satisfaction, this study assessed the influence of ICT on enhancing business performance of SBEs using main variables namely as ICT for market access, ICT for operational output and ICT for business profitability. The results were as presented in Table 2.

Table 2: Summarized satisfaction level on effectiveness of ICT on business performance (%)

Satisfaction level	Strongly Agree	Agree	Neither satisfied nor Dissatisfied	Disagree	Strongly Disagree
A: ICT for Market access					
(i) Information accessibility	20	50	14	10	6
(ii) Market share	26	60	6	4	4
(iii) Promotion Strategies	28	60	4	6	2
iv) Financial Conveniences	10	64	10	8	8
B: ICT for Operational Output					
(i) Conducive business environment	14	54	26	2	4
(ii) Business Barriers	28	50	20	2	0
(iii) Speed of new product to the market	20	52	10	8	10

(iv) Business efficiency	24	26	8	36	6
C: ICT for Business Profitability					
(i) Sales volume	16	60	8	6	10
(ii) Income level	14	68	4	6	8
(iii) Profit margin	10	50	20	8	12
(iv) Liquidity level	8	44	16	28	4

Source: Field data (2016)

## 4.0 DISCUSSION

### 4.1 Demographic characteristics of the respondents

The results revealed that on gender aspects, respondents fall within 50 by 50 gender ratio to have a balance of views from SBEs male and females for a true reflection of the society. The researcher selected equal number of both genders in order to get equal views from both male and female. This will also address the argument by Qazi, (2021); Lee et al., (2019), Tam et al., (2020) that despite the widespread use of ICT many studies have shown a gender imbalance in ICT usage and skill development in favor of male, whereby boys have a more positive view of ICT and utilize it to improve their learning

Moreover, respondents were also divided into three age groups, of which majority (50%) fall in the age group of 18 – 30 implying that these are the most users of ICT in comparison to the older ages who are sometimes less knowledgeable with ICT. The findings are supported by the research done by Kubiakto (2013) revealing that majority of people within this age group are known as Millennial Generation which are born after 1980 where technological advancement was higher than before. Based on Akande (2008) this group is Internet savvy, phone-addicted, opportunistic and digitally conscious.

Additionally, on education level category it was established that 0 % of respondents fall within uneducated and primary school category, 40% of respondents had secondary education, 50% had university degree education and 10% had postgraduate degrees. Thus, 60 of the respondents had first and postgraduate degrees. The findings support study by Foley, Alfonso and Ghani (2002) that, high educational levels have a high chances of the basic ICT skills and knowledge. On top of that OECD (2001) argued that in general, the higher the level of education, the more likely individuals are to have access to and use ICTs in both the home and the work place.

Moreover, The researchers grouped respondents basing on the income level since the level of usage of ICT by higher and lower income earners is different. The findings revealed that 35% of respondents had income between Tshs 500,000/= - 1,500,000/=, 55% of respondents had income that is above Tshs 1,500,000- 2,500,000 and only 10 % had income of more than 2,500,000/= This is in line with the findings from Flores (2003) that individuals with higher income use ICT more often as compared to those with lower level of income. Besides OECD (2001) depicted that for consumers and small businesses, the most significant costs for engaging in electronic commerce are the prices of local communication access. Thus, Educational attainment and income are strongly related and explain much of the difference in uptake. Moreover, at the same income level, those with higher educational attainment will have higher rates of access.

Apart from that respondent also were classified according to their current occupations despite all being in SBEs incubation program. The classification here included students, self-employed professionals, and traders. The findings indicate that 15% of respondents were continuing students, 70% were self-employed professionals, and the 15% were employed somewhere else. Millan et al (2021) revealed that digital skills are needed to participate in today's modern societies and to improve one's economic situation, despite huge inequalities in access and adoption of ICT. The self-employed who use ICT 'all of the time' if not careful enough, will not have enough time left to maintain networks or visit clients. With regard to experience in SBEs, 25% of respondents had less than 1 year experience, 20% ranges between 1 and 2 years experience, 40% falls between 2 and 3 years and the remaining 15% had more than 3 years experience in the business.

### 4.2 Influence of ICT on enhancing business performance

The first aspects of market accessibility were assessed using four

elements namely as: information accessibility, market share, promotion strategies and financial conveniences. With regard to information accessibility the results revealed that 20% of respondents are highly satisfied, 50% are reasonably satisfied, 14% were neutral. Only 16% were combined considered as dissatisfied. Thus, the study summarizes that for 70%, one of the crucial aspects that could be easily impacted by a properly programmed ICT system is market accessibility. This finding coincide with Hamili (2017) with argument that market information services, especially those based on mobile phones and tablets, can enhance SBEs and farmers' ability to access markets and match consumers' demands through improving the flow of information between traders and producers, reducing transaction costs, and enabling farmers to purchase required inputs.

Another issue tested in this category was whether ICT has expanding the market share. In regards to this, the findings show that, majority of respondents were highly satisfied, with exception of only 4% were dissatisfied, and 4% were highly dissatisfied. Thus, 86% of the respondents currently see that ICT can widen up their marketing coverage. The findings correlate with Singh (2020) that ICT helps the companies in identifying the opportunities and implementing marketing communications via multiple media. It further helps in market expansion, diversity of revenue streams, convenience, value addition, customer satisfaction, improved sales performance and credibility, and growth opportunity.

The study also tested weather ICT has ability to contribute to the refined, customized and up to date promotion strategy. In regards to this aspect, results show that 88% of the respondents see ICT as bringing up to dated marketing strategy while 8% of the respondents do not. These results are in line with Singh (2020) that, ICT in marketing provides companies with easy access to vast global information resources and facilitates valuable competitive knowledge and consumer information that simplifies the decision process. Some of the ICT powered marketing channels are social media marketing, search engine marketing, content marketing, affiliate marketing, E-mail marketing, and SMS marketing.

The study also assessed the financial conveniences specifically how ICT enables SBEs manage payments from various stakeholders. In regards to this, Table 2 shows that, 10% were highly satisfied, 60% were reasonably satisfied, 6% were neutral, 4% were dissatisfied and 4% were highly dissatisfied. Thus 74 % see ICT as vital too helping them to access fund and good payment mode. The findings coincide with the findings by Panos (2013), which indicated that, ICT in financial services through mobile money transfer and other electronic machines have simplified the means of payment. Thus, an entrepreneur can conveniently transfer money online within a short time. Besides, the financial relations between SBEs and their financiers can be improved via ICT. Winborg and Landstrom, (2000) depicted that some small business managers tend to be restrictive when it comes to providing external financiers with detailed information about the core of the business, since they believe in one way or the other, information about their business may leak through to competitors. Thus, through strictly security systems, SBEs can be using ICT to share required information without un necessary hesitations.

In studying the impacts of ICT on productivity of small business enterprises, four entities were analyzed and studied. These items include enhancement of conducive business environment, minimization of business barriers, time and speed of new products to be channeled to the market. Despite the argument that an efficient ICT system may simplifies the business operations, the study findings revealed that 32% had combined undecided opinion and disagree on the matter. This might be due low level of ICT usage led by massive ICT investment cost required to support the business operation and the required infrastructure for customer and potential clients to access the firm's services or information online. However for those using ICT based on Beirut Arab University (2020) revealed that ICT makes a business more efficient, effective and promptly respond to customers' needs. ICT can assist business activities including design, manufacturing, R&D, distribution and sales and feedback. Robert (2000); Beckinsale and Ram (2006), revealed that they are satisfied with improving business efficiency; operational effectiveness and the need to reach out for new markets and opportunities. Some SMEs have exploited ICT effectively to improve internal communications and have improved their reputation through swift responses to customers' complaints and an ability to capture clients' (hidden) needs (Ministry of Economy, Trade and Industry of Japan -METI), 2001).

Respondents were also asked to provide their opinion on how ICT usage can be used to minimize various business barriers to market. From the results 20% of respondents were un decided. The respondents with undecided opinion can be linked to the fact that limited SBEs use ICT and there is little proof that the dispersion and utilization of ICTs can advance monetary competitiveness and development in less developed nations as depicted also in Matambalya and Wolf (2001). Besides,

78% acknowledges that ICT has improved the operation of their business due to tackling business and market barriers. These findings aside with Bughin, et al., (2011) that ICT promotes changes in organizations, and is a good stimulant to SME development, since it helps in finding the new business models, raise awareness, and saves time, price transparency.

Another important aspect was to test if currently respondents have realized any benefit due to ICT application on the speed of moving new products from the company to the market. The results show that 72% acknowledges contribute in innovation and moving the product to the market at the faster rate. Bayus (1997) depicted that the firm must decide whether to speed development efforts to beat the competition to market. Analysis of the various tradeoffs for this scenario suggests that first-to-market status for a product with a high performance level is optimal under the following conditions: a relatively long window of market opportunity, relatively high sales, and relatively flat development costs. With a long product lifecycle, stable margins, and high sales, the firm can generate sufficient revenue to offset the increased cost incurred in speeding a high-performance product to market. Beating a competitor to market with a low-performance product is never optimal for the cases considered here. In this context, ICT play a big role. However, 10% were undecided and 18% were having negative opinion

This study also tested the perception of the respondents whether ICT contributed to the increasing business efficiency. The findings revealed that despite the 46% of respondents in aggregate agree that business efficiency can be enhanced by ICT. 8% of the respondents had neutral opinion and 36%. With regard to increasing business efficiency resulted from the use customer relationship management, timely feedback and customized marketing which will in turn impact positively in business performance the study correlates with Nurmilaakso (2014) that attributes of economic activities are related to information and communication technology (ICT) investments just because ICT can reduce coordination costs by affecting information processing, communication, delays and errors, coordination cost attributes of the activities can explain these investments. Furthermore, ICT can be used to promote and ensure urbanization, which became the norm of life of the twenty first century and poses one of the most critical challenges to achieve economic development and better standard of living, which will in turn improve efficiency as depicted in Beirut Arab University (2020). However, over 60% didn't realize benefits due to number of challenges related to infrastructure, knowledge and business networks. However, large numbers of SBE's do not see ICT as a good element for increase efficiency mainly because of the higher required investment cost made and long return on the investment.

#### **4.3 ICT for Business Profitability of Small Business Enterprises**

The last part of this study investigated the satisfaction level of the link between ICT and the business profitability through analysis of the impact on the increasing sales volume, income profit margin and liquidity level. On the first aspect of profit addition through increased volume of sales. During this study 16.0% and 60% of the respondents strongly agreed and agreed respectively that through ICT they increased their sales volume. The remaining percentages were undecided and disagree. This might be contributed by a well planned and implemented ICT marketing campaign attracts more customers and eventually increases the sales due to an extended customer base as revealed also in Nyangarika and Ngasa (2020b). Moreover, Winborg and Landstrom (2000) pointed out that lack of information is another area of constraint, which tends to block the flow of credit to small and medium enterprises. Small business owners most often possess more information about the potential of their own businesses but in some situations it can be difficult for business owners to articulate and give detailed information about the business as the financiers want.

Furthermore, based on Mehack & Dharni (2022), finance has become a crucial part of our economy for development of the society, thus finance interms of income level was one of the vital variable under this study. In view of that with respect to income level, the study's finding revealed that in total 82.0% of the respondent are satisfies and agreed that ICT helps in increasing their income. The increasing in income could be attributed by various ICT related factors such as availability of vast communication and marketing collaterals via online platform as well as reduced costs particularly that of marketing, transaction and communication in general as evidenced in Garicano and Kaplan (2001).

Pertaining ICT and profit margin, this study revealed that ICT could be source of the increase in profit margin strongly agreed by 10% and agreed by 50%. However a total of 40% of responders were undecided and disagree on the link between ICT and SBE's profit margin mainly due to high costs related to acquisition, transportation and installations of both hardware and software as well as inadequate training, lack of an ICT policy and poor ICT security were fundamental challenges facing

SMEs as also depicted in Maghanga (2017) for the case of Kenya. If excessive, these costs may reduce the profit of the business.

Last business profitability variable to be assessed was the liquidity level, the findings were almost equal on the two sides of agree and disagree where by 52% combines the perceptives of both strongly agree and agree, while the respondents rated 16%, 28% and 4% for undecided opinion, disagree and strongly disagree. On the positive side, SBEs now have ability to use computers to carry out most financial transactions between banks in various ways including use of internet banking, clearing cheques, paying salaries, payment of standing orders or direct debits, thus the level of enterprises and customers liquidity is highly enhanced as also evidenced in Abernathy (2005) and Essinger (1999). Contrary to the past whereby majority of people especially in rural people are only familiar with a small number of banking services and activities; as a result, they are still restricted to these services. Thus most people believe that banks' only activities are deposits and withdrawals. This is why they avoid using other financial services as evidenced in Mehack., & Dharni (2022).

Despite of that, the ICT alone will not affect the SBE's availability of ready cash or their ability to convert assets and security into cash. The effort must be made to increase sales, income and profit as well as accumulate liquidable assets.

## 5.0 CONCLUSION

This study therefore ascertains the substantial influence of ICT in enhancing SBE's business performance in Tanzania. The overall findings showed that for SBEs to benefit from the ICT, they need to capitalize it in increasing market access through information accessibility, market share, cutting edge promotion strategies and enhancement of financial conveniences; to increase the operational output through supporting conducive business environment, minimization of business barriers, increasing speed to the market and business efficiency. On top of that SBE's must ensure that the ICT is effectively and efficiently used to increase sales volume, income level, profit margin and liquidity level. However, the issues of availability, affordability and knowledge base of both ICT hardware and soft ware must be well taken care of. This study also showed that effect towards reaching that decision is also linked to demographic characteristics of respondents mainly gender, age, education level, monthly income, occupation, time and experience level

### COMPETING INTERESTS DISCLAIMER:

Authors have declared that no competing interests exist. The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

## REFERENCES

- 1) Abernathy, W. J. Utterback, J. M. (2005). Innovation and the Evolution of Technology in the firm. Harvard University Press, Cambridge, M.A.
- 2) Akande, B. O. (2008). The I.P.O.D. generation. Diverse. Issues in Higher Education, 25 (15), 20-23.
- 3) Bayus, B,L (1997). Speed-to-market and new product performance trade-offs. Journal of Product Innovation Management, 14 (i6) , 485-497
- 4) Beirut Arab University (2020). Information and Communication Technology in Business . Retrieved from <https://www.bau.edu.lb/NewsAndEvents>
- 5) Beckinsale, M., & Ram, M. (2006). Delivering ICT to ethnic minority businesses: an action-research approach. Environment and Planning C: Government & Policy, 24(6), 847-867.
- 6) Bughin, J., Corb, L., Manyika, J., Nottebohm, O., Chui, M., Barbat, B., & Remi, S. (2011). The Impact of Internet Technologies: Search. McKinsey & Company.
- 7) Blili, S., Raymond, L. (1993): Information Technology: Threats and Opportunities for Small and Medium-Sized Enterprises. International Journal of Information Management, (13) 439-448.
- 8) Chang, Younghoon; Siew Fan Wong; Park, Myeong-cheol (2014). Determinants of user satisfaction in internet use among socio- economically advantaged and disadvantaged groups: The role of digital access and government policy . Conference Paper 25th European Regional Conference of the International Telecommunications Society (ITS), Brussels, Belgium, (22-25 June )

- 9) Essinger, J. (1999) . "The Virtual Banking Revolution", The Customer, The Bank and the future. 1st ed. International Thomson Business Press, London, UK.
- 10) Flores, C., (2003) .Measuring the relationship between ICT use and income inequality in Chile. Working paper No.26 [https://utip.lbj.utexas.edu/papers/utip\\_26.pdf](https://utip.lbj.utexas.edu/papers/utip_26.pdf)
- 11) Foley,P., Alfonso, X., and Ghani, S., (2002).The digital divide in a world city A literature review and recommendations for research and strategy development to address the digital divide in London . Retrieved from <https://www.semanticscholar.org/paper/The-digital-divide-in-a-world-city-Foley-Alfonso/06ea27369d4d070888b4b941007d5335f76ff6f6>
- 12) Frieden, R. (2005). Lessons from broadband development in Canada, Japan, Korea and the United States. *Telecommunications Policy*, 29(8), 595-613.
- 13) Garicano, L., & Kaplan, S.N. (2001). The effects of business-to-business e-commerce on transaction costs. *Journal of Industrial Economics*, 49(4),
- 14) George, D., & Mallery, P. (2003). *SPSS for Windows step by step: A simple guide and reference*. Boston: Allyn & Bacon.
- 15) Gilaninia, S., Mousavian, J. S., Oniduari, N., Bakhshalipour, A., Eftekhari, F., & Seighalani, Z. F. (2012). The Role of ICT in Performance of Small and Medium Enterprises. *Interdisciplinary Journal Of Contemporary Research In Business* , 3 (9).
- 16) Grimaldi, R. & Grandi, A. (2005). Business Incubators and New Venture Creation: an Assessment of Incubating Models, *Technovation*, 25(2), 111-121.
- 17) Hamili, S. (2017) . Strengthening Agricultural Market Access with ICT. [https://doi.org/10.1596/978-1-4648-1002-2\\_Module9](https://doi.org/10.1596/978-1-4648-1002-2_Module9). World Bank e Library
- 18) Hallberg, K. (2000). A market-oriented strategy for small and medium enterprises. In IFC Discussion Paper no. 40, 2000, The World Bank, Washington, DC.
- 19) Kubiatio, M. (2013). The Comparison of Different Age Groups on the Attitudes toward and the Use of ICT. *Educational Sciences: Theory & Practice* , 13(2)
- 20) Kuzilwa, J. A (2003). The role of Credit for Small Business Success: A study of the National Entrepreneurship Development Fund in Tanzania. A Paper presented at the MU/AUC International Conference on Entrepreneurship and Business Development. White Sands Hotel, Dar es salaam February 26-28 (Un published).
- 21) Lee, C. C., Czaja, S. J., Moxley, J. H., Sharit, J., Boot, W. R., Charness, N., & Rogers, W. A. (2019). Attitudes toward computers across adulthood from 1994 to 2013. *The Gerontologist*, 59(1), 22–33.
- 22) Lose, T. (2016). The Role of Business Incubators in Facilitating the Entrepreneurial Skills Requirements of Small and Medium Size Enterprises in the Cape Metropolitan Area, South Africa. MTEch Thesis, Cape Town. Cape Peninsula University of Technology.
- 23) Maghanga, E. (2017). Challenges affecting use of i.c.t by small & amp; medium sized enterprises (SMES) in Kenya: A case study of Tsavo Securities Ltd. *Journal of Entrepreneurship and Project Management*, 2(2), 1–16.
- 24) Matambalya, F., & Wolf, S. (2001). The role of ICT for the performance of SMEs in East Africa: Empirical evidence from Kenya and Tanzania,. ZEF Discussion Papers on Development Policy, No. 42, University of Bonn, Center for Development Research (ZEF), Bonn, <http://dx.doi.org/10.22004/ag.econ.18717>
- 25) Mehack., & Dharni, K. (2022). A Study on Financial Inclusion in India and Its Relation with Financial Literacy. *Journal of Economics, Management and Trade*, 28(1), 49-66. <https://doi.org/10.9734/jemt/2022/v28i130388>
- 26) Mfaume,R and Leonard,W (2004) Small Business Entrepreneurship in Dar es salaam - Tanzania: Exploring Problems and Prospects for Future Development. Forum paper of African Development and Poverty Reduction:The Macro-Micro Strategy □Forum.
- 27) Millan,J.M, Lyalkov,S., Burke,A , Millam, A and Stel, A (2021). Digital divide' among European entrepreneurs: Which types benefit most from ICT implementation? *Journal of Business Research*, (125) ,533-547.
- 28) Ministry of Economy, Trade and Industry of Japan (METI) (2001). White Paper on Small and Medium Enterprises in Japan, SME Agency of Japan. Retrieved from <http://www.chusho.meti.go.jp/hakusyo/h13/download/2001eibunzennbun.pdf>.
- 29) Mutandwa, E., Taremwa, N.K and Tubanambazi, T. (2015) . Determinants of Bussness Performance of Small and Medium Size Enterprises in Rwanda. *Journal of Developmental Entrepreneurship* ,20 (1).
- 30) Mwakaje, G.A., (2010) Information and Communication Technology for Rural Farmers Market Access in Tanzania. Retrieved from [www.udsm.ac.tz](http://www.udsm.ac.tz)
- 31) Nakhata,C.(2018).Therelationshipsbetweenhumancapital,entrepreneurialskillsandcareersuccessof SME entrepreneursinThailand.*AUJournalofManagement*,5(1),17-26.
- 32) Ndabeni, L. L. (2008). The Contribution of Business Incubators and Technology Stations to

- Small Enterprise Development in South Africa. *Development Southern Africa*, 25(3), 259-268.
- 33) Nurmilaakso (2014). Coordination costs and ICT investments: an economic analysis NETNOMICS. *Economic Research and Electronic Networking* 15(2):57-67
  - 34) Nyangarika ,A. and Ngasa, Z.J. (2020a) Role of ICT Usage in Market Accessibility of Small Business Enterprises in Tanzania. *International Journal Of Advance Research And Innovative Ideas In Education* , 6(3):202-210.
  - 35) Nyangarika ,A. and Ngasa, Z.J. (2020b). Profitability of ICT Usage towards Productivity of Small Business Enterprises in Tanzania .*International Journal Of Advance Research And Innovative Ideas In Education* ,6 (3) .
  - 36) Organization for Economic Co-operation and Development -OECD (2004).*Principles of Corporate Governance* . OECD
  - 37) OECD (2011). *Understanding the digital divide*. OECD.
  - 38) Osotirehim K.O, Jegede GA Kinlabi B.H and Olajide O.T (2012): The Challenges and Projects of Micro and Small scale Enterprises Development in Nigeria. *American International Journal of Contemporary Research*,2 (4)
  - 39) Patton, M.Q. (2002). *Qualitative Research and Evaluation Methods*. Thousand Oaks, CA: Sage
  - 40) Paulina G. and Nikolaus (2007). *Research on Entrepreneurial Companies use of ICT, Case Study of Duban, South Africa*.
  - 41) Plomaritou, E., & Patsiouras, C. (2020). Marketing Information System: A Success Factor of Shipping Business in Cyprus. *Journal of Economics, Management and Trade*, 26(10), 86-99. <https://doi.org/10.9734/jemt/2020/v26i1030301>
  - 42) Poneis,S.R & Holmner ,M,A.(2015) ICT in Africa: Enabling a Better Life for All. *Information Technology for Development*, 21:1, 1-11.
  - 43) Qazi, A., Hasan, N., Olusola Abayomi-Alli, Hardaker,G. Scherer,R. Sarker,Y. Paul,S,K & Maitama,J.Z (2021). Gender differences in information and communication technology use & skills: a systematic review and meta-analysis. *Educ Inf Technol* <https://doi.org/10.1007/s10639-021-10775-x>
  - 44) Rashid,T and Leonard,M.W (2004) .Small business entrepreneurship in Dar es salaam– Tanzania: Exploring problems and prospects for future development. *African Development and Poverty Reduction: The Macro-Micro Linkage*. Forum Paper 13-15 October, 2004. Development Policy Research Unit & Trade and Industrial Policy Strategies
  - 45) Roberts, J. (2000). From Know-how to Show-how? Questioning the Role of Information and Communication Technologies in Knowledge Transfer. *Technology Analysis & Strategic Management*, 12 (4), 429-443.
  - 46) Robson, C., 1993. *Real world research: a resource for social scientists and practitioner researchers*. Blakewell, Cambridge, USA, ISBN 0631176896
  - 47) Rutashobya, L., Chijoriga, M., & Ishengoma, E. (2014). Assessments on how successful firms combine their resources, capabilities and strategies to gain competitiveness and sustain and grow their businesses despite the challenging and unfavorable business environment. *Journal of African Business*, .
  - 48) Sarkar, S. (2012). *The role of Information and Communication Technology (ICT) in Higher Education for the 21st Century*. Agartala: ICFAI University Tripura.
  - 49) Saunders, M. N. K., Lewis, P. & Thornhill, A. (2009). *Research Methods for Business Students* (5th Edition). London Pearson Education.
  - 50) Scott, S. (2014). *ICTs for Financial Services in Africa*. World Bank, Washington, DC.
  - 51) Shane, S. (2003). *A general Theory of Entrepreneurship: The Individual-Opportunity Nexus*. Edward Elgar Publishing Limited, London. 337pp.
  - 52) Singh, S (2020). Information communication technology-a vital marketing tool. *The Times of India*. Retrieved from <https://timesofindia.indiatimes.com/blogs/marketing-swan/information-communication-technology-a-vital-marketing-tool/>
  - 53) Tachiki, D.,Hamaya,S., and Yukawa,K. (2004). Diffusion and Impacts of the Internet and E-Commerce in Japan. Globalization and E-Commerce project of the Center for Research on Information Technology and Organizations (CRITO) at the University of California, Irvine
  - 54) Tam, H.-L., Chan, A. Y.-F., & Lai, O. L.-H. (2020). Gender stereotyping and STEM education: Girls' empowerment through effective ICT training in Hong Kong. *Children and Youth Services Review*, 119 (C).
  - 55) Tötterman, H. and Sten, J. (2005). Start-ups: Business incubation and social capital. *International Small Business Journal*, 23 (5), 487-511.
  - 56) URT.(2002/3). *Small and Medium Enterprises Development Policy*. Ministry of Industries and Trade, Dar –es Salaam, Tanzania.
  - 57) Ward, T (2005). *An integrated model of Entrepreneurship and Intrapreneurship*. Conference:

13th Annual High Technology Small Firms Conference

- 58) Winborg, J & Landstrom, H. (2000) Financial Bootstrapping in Small Businesses: Examining Small Business Managers' Resource Acquisition behaviour .Journal of business venturing, 16, (235- 254) .

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