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Business, Technology and the New Normal: ICT Adoption and Use among Women Traders

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***Abstract* - The aftermath of the COVID-19 pandemic has compelled individuals and businesses to restructure and adapt the formerly 'established' ways of doing things to capitalize on the opportunities presented by ICTs. This circumstance has resulted in what is known as the "New Normal". This entails a longer-term perspective in terms of business decisions to optimize the usage of the internet to continue to stay in business. To evaluate women's knowledge, and ICT use during the pandemic in Yilo Krobo Municipality, the survey approach was used. A total number of 20,160 women are employed constituting 5.4% in the public sector, private formal 3.5%, private informal 90.8%, semi-public/parastatal 0.1% while NGO represents 0.2%. A statistical table was used to determine the sample frame and size resulting in a sample size of 322 from a population of 20,160 women employed with a confidence level of 95%. Three hundred and fifty (350) questionnaires were distributed and only 193 were completed, returned and used for analysis. With regards to ICT devices or services, the findings revealed that about 95% of the respondents had access to mobile phones and 70% of these respondents were connected to the internet through their mobile phone hotspot. The study discovered a low level of adequacy of knowledge of ICT use across variables such as age groups, educational attainment, and marital status.**
***Keywords:* COVID-19, Women, Information Communication and Technology, Business Enterprises**

I. INTRODUCTION

ICT and digital technologies, services, products, and skills are transforming modern economies and the entire production, management, and governance systems (Brennen & Kreiss, 2014). ICTs can provide various value propositions and positively impact activities, processes, and stakeholders at various levels in the context of small and medium-sized businesses (OECD, 2018). The COVID-19 pandemic, as well as various government policies on social distancing and mobility restrictions, have all contributed to an increase in the use of ICTs to bridge some of the physical access gaps. ICT tools and applications are now used to deliver various services and extension/information activities. E-commerce has also thrived. As a result, the potential of ICTs has gained prominence in immediate response and recovery strategies and programmes.

However, the rapid advancement of ICT tools and services contrasts sharply with the many systemic and structural barriers to technology access and adoption that many people in rural Africa, particularly women, continue to face, such as a lack of digital infrastructure, high data costs, and a lack of training and knowledge, among other things. Despite significant growth in information and communication technologies (ICT) and a digitalization drive championed by many Sub-Saharan African (SSA) countries over the last ten years, progress in serving African smallholders, particularly women, has been somewhat slow (CTA, 2019). COVID-19 and its resultant lockdown have had social and economic consequences in the least developed, developing, and emerging economies (UNDP, 2020). It has primarily worsened previously existing gender and information and communication technology disparities. The effects of COVID-19 on the world's economies have caused individuals, organizations, and entrepreneurs to suffer as a result of border closures and lockdowns (Thukral, 2021). According to (UNCTAD) (2021), the COVID-19 pandemic has changed the global business climate, resulting in an increase in online retail sales in China's online market from (19.4 per cent) to (24.6 %) between August 2019 and August 2020, and retail sales in Kazakhstan increased from (5 per cent) in 2019 to (9.4 per cent) in 2020, and massive downloads of shopping apps in Thailand increasing by (60 per cent) in just one week during March 2020. A clear indication of the increasing relevance of digital platforms.

However, Wong (2020) asserted that, despite the widespread adoption of e-commerce, many consumers and businesses in developing countries have yet to capitalize on the pandemic-induced e-commerce opportunities due to persistent barriers such as high internet data costs, a lack of digital skills, low income, and a lack of interest in e-commerce. Digital entrepreneurship, as an alternative to doing online business with fewer contacts between buyers and sellers, emphasizes the reality of the 'New Normal' (Bacqa & Lumpkin, 2021).

This study investigates how the women of Yilo Krobo used ICT in their respective endeavours during the pandemic.

A. Profile of Yilo Krobo Municipality

Yilo Krobo Municipality is one of twenty-six (26) municipalities/districts in the Eastern Region. It is located approximately between latitudes 60.00'N and 00.30'N and longitudes 00.30'W and 10.00'W. It has an area of 805 square kilometers, accounting for 4.2% of the Eastern Region's total geographical area. Lower Manya Krobo Municipality and Upper Manya Krobo District border the municipality on the north and east, Akwapim North Municipality and Shai-Osudoku District on the south, and New Juaben and East Akim Municipalities and Fanteakwa District on the west (see figures 1.1 and 1.2, which show the Yilo Krobo Municipality in the national and regional contexts respectively). Yilo Krobo has a total population of 87,847 people, according to the 2010 Population and Housing Census (PHC), of which 42,378 are men (48.2 per cent) and 45,469 are females (54.8 per cent), indicating that females outnumber males. This represents 3.3% of the region's population. The population of the municipality was 91,183 at the end of 2013, with a crude growth rate of about 1.25 per cent. Cities house approximately 30.92% of the population, while rural areas house the remaining 69.82%. This could be because the municipality is rural rather than urban.

Source: https://www.graphic.com.gh/news/general-news/yilo-krobo-to-celebrate-kloyosikplemi-festival.html
Fig. 1 Yilo Krobo celebrating kloyosikplemi-festival

Source: https://gajreport.com/yilo-krobo-district-a-rock-in-a-form-of-an-umbrella/
Fig. 2 Yilo Krobo District: A Rock in a form of an umbrella

II. LITERATURE REVIEW

A. Women, Entrepreneurship and Information Communication Technology

Access to web-enabled ICTs is rapidly becoming a major factor in earning power, social capital, and social mobility (Web Foundation, 2014). For many women across the globe, entry into the labour market has become a necessity to sustain themselves as well as the well-being of their families. As a result, Bhavnani et al. (2016) argue that the development discourse should include women as economic agents. Women are frequently involved in complex, insecure, and informal work arrangements, even though their earnings are insufficient to cover their households' living expenses (Kabeer, 2008). Despite the numerous benefits that ICT provides for structural and economic transformation, a greater number of women are marginalized when it comes to the use of ICT. Kleine (2010) posits that "ICTs are profoundly linked into social, political or economic interests and in this combination obtain the power to transform societies. As ICT has the potential to transform all economies

and societies, effective access and utilization of ICT can improve women's leadership and participation in community and economic development activities (Kiran, 2018).

Kamutuezu *et al.,* (2021) conducted a study to explore factors influencing the adoption of ICT-enabled entrepreneurship applications in Namibian rural communities and the study discovered that rural entrepreneurs' low adoption of ICT-enabled services was driven by many factors including lack of awareness of digital services, lack of skills, lack of electricity supply, lack of access to smart devices, and cybercrime. In 2012, Research ICT Africa conducted a study that estimated women's chances of benefiting from ICTs and found that they were one-third lower than men.

A study by Kravets (2011), revealed that (21%) of women and girls in developing countries have access to the Internet, while (27%) of men have access although the United Nations declared access to the Internet a basic human right (Intel 2013). However, according to a survey on online teaching conducted by Kim and Bonk (2006), the number of women online instructors has increased dramatically over the last decade. According to the study, the majority of respondents (53 per cent) were women, in contrast to a similar survey conducted a few years earlier, which was dominated by male instructors.

Another study conducted among women in Valiathura a suburb of India by Meera (2013), reflects the role of ICTs in their day-to-day lives. The findings of the study further revealed that Radio, TV, and mobile phones were the most popular ICT devices used by women for their economic activities. Sardar et al., (2021), in their study, concluded that the perceptions of small-scale entrepreneurs about the ease of use and usefulness of ICTs influenced their adoption of ICT during the COVID-19 pandemic among the study respondents. The study reported that ICT had an immediate impact on entrepreneurial self-efficacy and social networking.

B. Access, Knowledge, and Women's Usage of ICT

There have been numerous studies focused on information and communication technologies (ICT) in education, maternal health, and political participation. However, women's usage of ICT for development or empowerment is a relatively new phenomenon on the international development agenda (Güney-Frahm, 2018). According to Lindsey (2020), despite having less access to mobile technology than males, women are responsible for a great portion of home care duties for children, the elderly, and the sick, and frequently manage informal micro-businesses from home. Providing women with access to mobile technology is more crucial than ever for their and their family's well-being and society as a whole. Nonetheless, in low- and middle-income nations, 165 million fewer women than males do not own a mobile phone, and 300 million fewer women utilize mobile internet. Women are missing out on the benefits of a mobile connection just when they need it the most.

Today, ICT is included in the seventeen Sustainable Development Goals (SDGs) launched in 2016. SDG Five deals with 'Gender Equality (UNDP, 2017b) with one of its specific targets being to 'enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women (UNDP, 2017b). Güney-Frahm (2018) suggested that in development practice ICT is employed in several ways ranging from mobile health services to the provision of digital selling platforms for home-based female workers which include but are not limited to petty trading. Basic use of Internet-enabled ICT includes online representation of the firm, its products or services, and simple information exchange via email. Advanced use of the Internet assumes more sophisticated two-way interaction and data processing and includes online ordering and payment, collecting feedback from customers, and integrating the homepage with the firm's internal functions (Bengtsson *et al.,* 2007).

Li *et al.,* (2021) conducted a study on the barriers to learning new technology to go online among older adults during the COVID-19 pandemic. The study reported that the majority of participants sampled (71.8 per cent) did not report learning any new technology to access the internet. Those who did not learn new technology to go online had a lower increase in ICT use than those who did (50.7 per cent vs. 78.4 per cent or 89.2 per cent, respectively, p 0.01).

A study conducted in Ireland, Dublin by Oshunloye, (2009), analyzed survey data from five selected companies concerning how they use ICT which is the internet and mobile phones in marketing. The survey results and analysis showed that the companies under study used ICT in their marketing but did not maximize the use of the different ICT tools like emails, short messaging services (SMS), and multimedia messaging services (MMS).

Another survey conducted on the Pacific Island among exporters showed that firms that are active in ICT use have a greater concentration of female executives under 45 years of age than those that are active offline (DiCaprio and Suominen, 2015). Etsy, (2017), a creative commerce platform, surveyed women vendors in the United State. The study discovered that 86% of its vendors were women, and they are more likely to be younger than the typical business owner. Alibaba Group (2017), a Chinese E-Commerce platform, also reported that more than half of all online shops are owned by women. In comparison, only 17.5% of small enterprise in China has a female top manager, and the figure globally stands at 18.6% (World Bank Enterprise Surveys).

Ibrahim (2014) investigated the variables impacting the adoption and usage of information and communication technologies (ICTs) by Somali small and medium companies (SMEs). To achieve the aims, the study used a case study technique to collect both qualitative and quantitative data, as well as the diffusion theory of innovation. Data for the study were gathered using self-administered questionnaires. The findings of the study revealed that some of the primary

variables influencing the adoption and usage of ICTs by SMEs in Somalia were improved performance, higher profitability, and increased market share. The result indicated that 53% of offices had at least one ICT component, such as mobile phones. As a result, the study proposed that SMEs bring up their knowledge of the value of ICTs. Encourage SME collaboration to improve ICT equipment purchasing. Furthermore, business owners should be encouraged to provide ICT training to their personnel.

In Ghana, Agyepong, Yamson, Baffour, Kwarteng and Mireku, (2022), in their study investigated how women have charted structural transformation in Ghana with ICTs in Manya and Yilo Krobo Municipalities. The research was limited to solely female-led businesses and organisations. The study's findings indicated that the majority of women in municipalities were adopting ICT to grow their businesses and fir, ms, especially during the pandemic.

However, the women faced various impediments in their drive to utilize ICT, including costly equipment and data costs, a high illiteracy rate, and inconsistent internet connections, among others. To address the hurdles to digital literacy, there is a need to involve women entrepreneurs and stakeholders inclusively. The Assemblies should invest in public education initiatives as well as ICT training and capacity building for women.

On the contrary, a report by Lowe (2022), suggest that fresh data in Ghana shows that women are now almost on the same pedestal as men in terms of ownership of phone and ICT equipment. This implies that by 2021, there was almost no gender disparity in mobile ownership in Ghana. The report further claimed that there would be almost no gender inequality in Ghana's ICT use and mobile money user journey. As the saying goes, if a woman has technology savvy, she is equally inclined as a man to be aware of and appreciates ICT devices as well as become a frequent user.

III. MATERIALS AND METHODS

To evaluate the women's, knowledge, and ICT use during the pandemic in Yilo Krobo Municipality, a survey approach was used. Through this method, many women in diverse enterprises were reached to participate in the study. The women were drawn from both the formal and informal sectors purposely for the study. The survey instrument used consisted of a combination of closed-ended and open-ended questions. The study population comprised women in diverse enterprises in the Yilo Krobo Municipality. The Population and Housing Census in 2010 conducted by the Government of Ghana put the population of Yilo Krobo, (Somanya) at 87,847, representing 3.3% of the Eastern region's total population.

A. Sample Size

A total number of 20,160 women are employed in the constituting 5.4% in the public sector, 3.5% in the private formal, 90.8% in the private informal, 0,1% in the semi-public/parastatal while NGO represents 0.2%, according to the (Ghana Census Bureau, 2010). A statistical table by Krejcie and Morgan (1970), was used to determine the sample frame and size resulting in a sample size of 322 from a population of 20,160 with a confidence level of 95%. Three hundred and fifty (350) questionnaires were issued, and only 193 were returned and used for analysis.

B. Data Collection Procedures

Self-administered questionnaires were distributed to the respondents, and these consisted of open and closed-ended questions. Closed-ended questions included a combination of multiple choices, yes/no, and ordinal ranked statements. Open-ended questions were included which allowed respondents to provide more information, about their feelings, attitudes, and understanding of the subject. This allowed the researchers to better consider the respondents' reported attitudes, perceptions, feelings, and understanding of the phenomenon. The research survey period was closed after a data collection period of eight days (15th May to 23rd May 2021).

The online survey platform, Google Form served as an inexpensive and ideal data collection tool within the period under the circumstance, hence non-list-based random sampling was employed to circulate the questionnaire via eight (8) research assistants who served as the focal points for the data collection. Fricker and Schonlau (2002) indicated that non-list-based random sampling methods allowed for the selection of a probability-based sample without the need to enumerate a sampling frame. Data generated for the study were analysed using the Statistical Package for Service Solution (SPSS) version 25 from which descriptive and inferential statistics were computed.

C. Ethical Consideration

Respondents were made aware of the anonymity and voluntary nature of the survey. Respondents were assured that the data collected would be used exclusively for the research purpose. All respondents were dully assured of confidentiality. For participants who could not read and write, the research assistants helped to read and explain the objectives and questionnaire to them.

IV. RESULTS AND DISCUSSION

A. Background Information

The demographic information of the respondents is presented in Table I. The majority of the respondents constituting about 56% of the study participants were within the 18-30 years, age group. About 58% of the respondents were single and almost 40% had secondary-level education. Among the respondents, 26% were in sales and services, 14% in craft and related trade works, 12% in clerical support, and 12% in petty trading while others engaged in other types of businesses.

About 94% of the respondents adopted ICTs to support their business activities during the COVID-19 pandemic while among respondents who did not use ICT or internet facilities for their businesses, 94% had plans for using ICT to support their business while 6% were uncertain (figure 5).

TABLE I DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS AND ICT SUPPORT FOR BUSINESS

Variables	Total (%)	ICT Access		P-value
		Yes, n=193	No, n=13	
Age (In years)				
18-30	116 (56.3)	110 (57)	6 (46.2)	0.889
31-39	51 (24.8)	47 (24.4)	4 (30.8)	
40-49	28 (13.6)	26 (13.5)	2 (15.4)	
50 and above	11 (5.3)	10 (5.2)	1 (7.7)	
Marital Status				
Single	119 (57.8)	113 (58.5)	6 (46.2)	0.037
Married	71 (34.5)	66 (34.2)	5 (38.5)	
Divorced	6 (2.9)	4 (2.1)	2 (15.4)	
Separated	10 (4.9)	10 (5.2)	0 (0.0)	
Highest Level of Education				
No formal education	11 (5.3)	10 (5.2)	1 (7.7)	0.808
Primary	46 (22.3)	42 (21.8)	4 (30.8)	
Secondary	82 (39.8)	77 (39.9)	5 (38.5)	
Tertiary	67 (32.5)	64 (33.2)	3 (23.1)	
Type of Business				
Service & Sales Worker	54 (26.2)	7 (3.6)	1 (7.7)	0.454
Craft & Related Trades Workers	29 (14.1)	25 (13.0)	0 (0.0)	
Clerical Support	25 (12.1)	10 (5.2)	1 (7.7)	
Petty Trading	24 (11.7)	27 (14)	2 (15.4)	
Health & Allied Professional	20 (9.7)	20 (10.4)	0 (0.0)	
Corporate Organization	11 (5.3)	8 (4.1)	0 (0.0)	
Skilled Agric, Forestry & Fishery worker	9 (4.4)	21 (10.9)	3 (23.1)	
Catering Services	8 (3.9)	51 (26.4)	3 (23.1)	
Hospitality	8 (3.9)	7 (3.6)	2 (15.4)	
Technicians & Associated Professionals	2 (1.0)	2 (1.0)	0 (0.0)	
Other Professionals	16 (7.8)	15 (7.8)	1 (7.7)	
Access to Internet Facility				
Yes	175 (85.0)	172 (89.1)	3 (23.1)	0.000
No	31 (15.0)	21 (10.9)	10 (76.9)	

B. Access and Use of ICT in Businesses

Among ICT devices or services, about 95% of the respondents had access to mobile phones, 45% to televisions, 32% to computers, 32% to laptops, 12% to fixed telephone lines, and 9% had access to tablets (figure 1).

Among those who had access to the internet connection, 70% sourced their internet connectivity from mobile phone hotspots, 42% from wireless connections, 13% from broadband, 10% from a cable modem, 9% from dial lines while 2% sourced their internet connectivity from other sources (figure 2). Almost 70% of the respondents implemented ICT in their business to reduce the amount of time to reach out to their customers, 67% improved sales, 65% provided the opportunity to reach out to diverse customers from a wider geographical area, 54% facilitated customer complaints and feedback and 50% reduced delivery cost (figure 3).

This result is similar to a study conducted by Gumus, Peter and Musa (2021). The findings of the study revealed that ICT has a significant effect on the performance of SMEs in Jos North, Nigeria during the COVID-19 period, indicating that

the majority of the respondents, representing 94.6% strongly agreed or agreed that ICT has helped some SMEs to perform well and survive the severe effect of COVID-19 while, few respondents, representing 1.7% of the entire respondents strongly disagreed. From the discussion, it is imperative to note that the majority of the respondents of the current study (72.3%) are educated and therefore by implication are exposed to ICT.

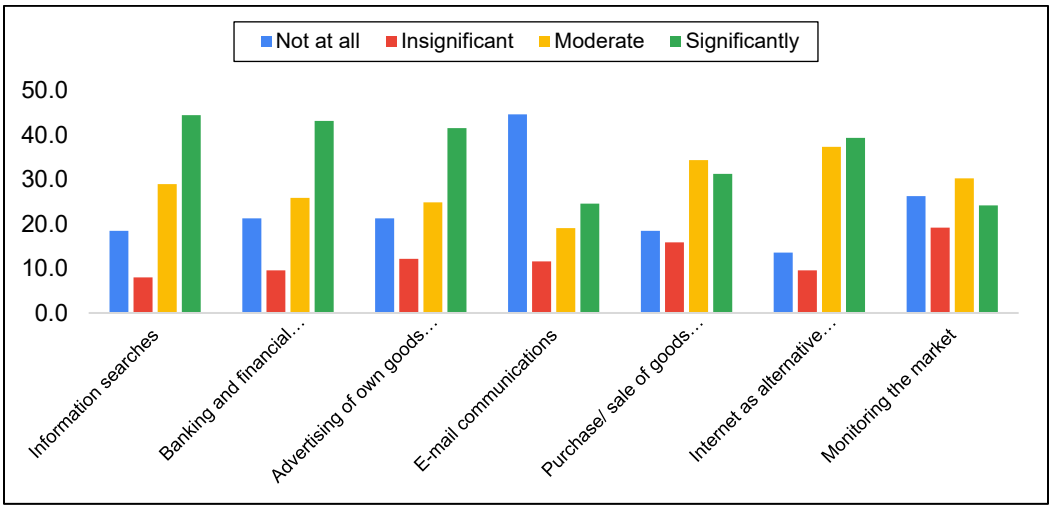

Fig. 3 Impact of ICT/Internet Use on Business

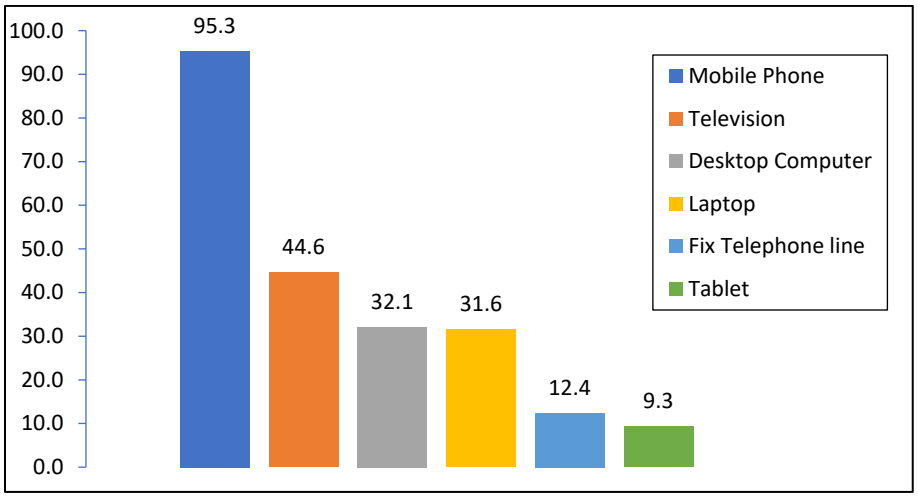

Fig. 4 Access to ICT Device

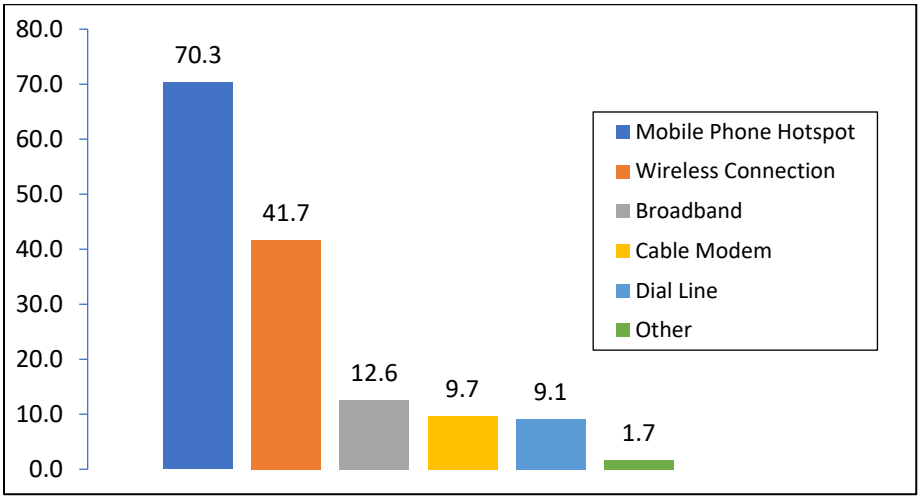

Fig. 5 Type of Internet Connectivity for Business

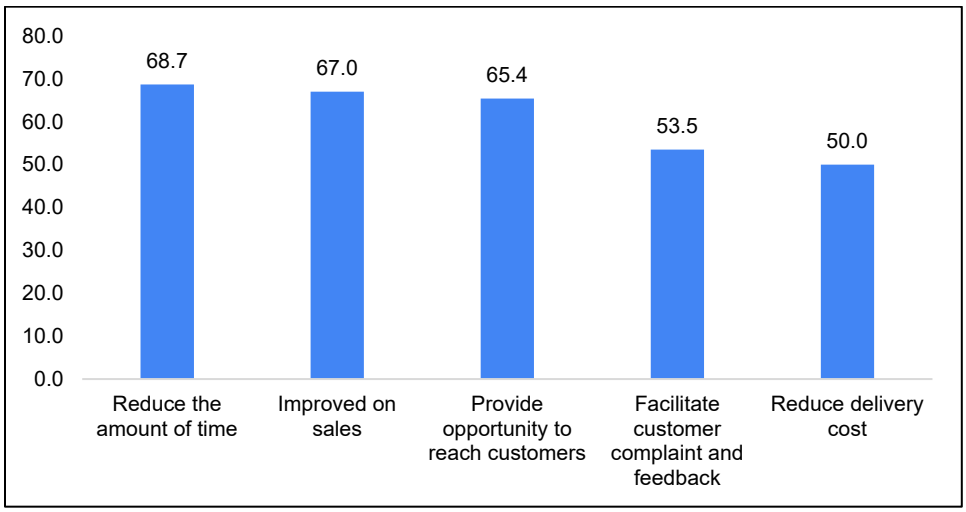

Fig. 6 Reason for Implementing ICT/Internet in Business Enterprise

C. Knowledge and Use of ICT

As indicated in (figure 4), 44% of the respondents strongly agreed, followed by 33% who agreed while 8% of the respondents disagreed that they were comfortable using ICT in their businesses. About 38% of the respondents strongly agreed and 36% agreed that information from the internet made their business transactions easier while 7% and 9% of the respondents strongly disagreed and disagreed, respectively. The majority of the respondents either (31%) strongly agreed, or (38%) agreed that ICT has helped improved their sales while 2% and 8% strongly disagreed and disagreed, respectively. Most of the respondents strongly agreed (20%) or agreed (39%) that ICT has enhanced their business transactions and reporting. A greater proportion of the respondent strongly disagreed (23%) or disagreed (35%) that they used ICT to create their own digital sales platform. The majority of the respondents strongly agreed (38%) or agreed (33%) that ICT enhanced their communication with their business partners. Similarly, most respondents strongly agreed (34%) or agreed (42%) to use ICT to improve their customer service. Over half of the respondents strongly agreed (23%) or agreed (31%) that ICT allows their businesses to store, process, analyze and share a vast amount of information and, most respondents either strongly agreed (25%) or agreed (45%) that ICT solutions helped reduced cost, increased revenue, and improved profitability in their businesses (figure 4).

Creating an enabling environment for Small to Medium-scale Enterprises to play key roles in the socio-economic development and the structural transformation of Ghana's economy requires the adoption and use of ICTs to organize supplies, link customers, and employees, acquire market information including prices and customer preferences, among others (Frempong, 2014).

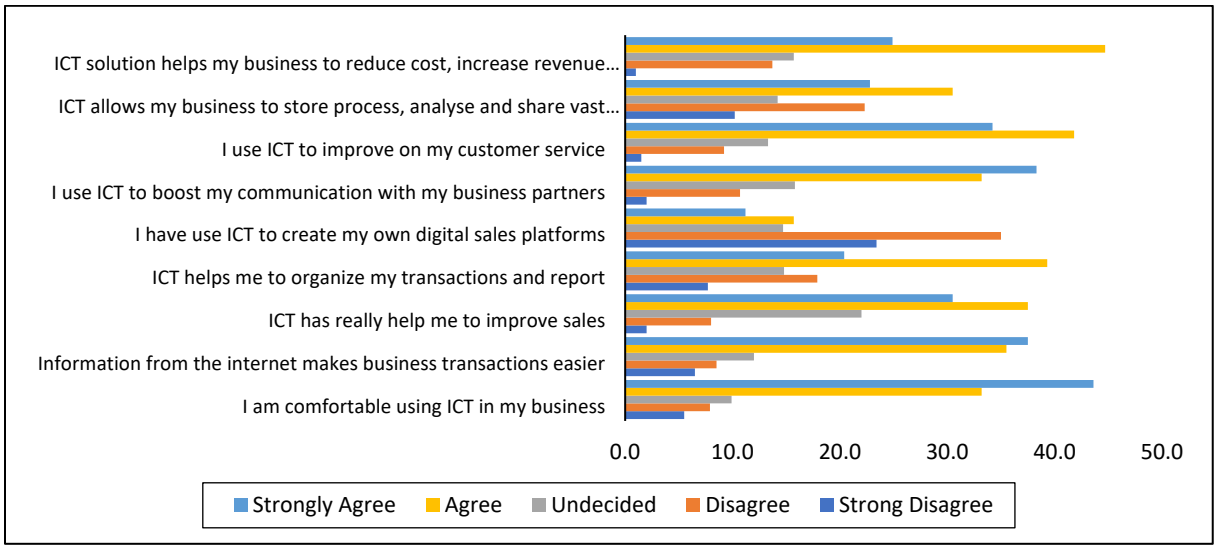

Fig. 7 Knowledge and Use of ICT

V. FINDINGS AND DISCUSSION

The study further discusses some critical issues that emerged from the survey results. Creating an enabling environment for Small and Medium-scale Enterprises to play key roles in the socio-economic development and the structural transformation of Ghana's economy requires the adoption and use of ICTs to organize supplies, link customers, and employees, and acquire market information including prices, and customer preferences, among others.

The findings of the study revealed that among ICT devices or services, about 95% of the respondents had access to mobile phones and 70% of these respondents were connected to the internet through their mobile phone hotspot. This study is consistent with research conducted by (Frempong, (2014), which sort to analyse survey results on access and usage of ICT facilities and services by SMEs in Ghana. The study revealed mobile telephone was the dominant ICT facility owned by the majority (41%) of the SMEs with the Internet as the least facility. The prominence of mobile telephones could be linked to increased mobile phone subscriptions in the country.

On the issue of the impact of ICT/Internet on business enterprises, the study discovered that the majority of the respondents (45%) indicated that ICT has significantly improved their information search related to their businesses. Similarly, a study conducted (by Hwang & Min, 2013) investigated the relationship between supplier performance and the external environment, ERP implementation, and supplier capability. The study concluded that ERP could enhance the ERP adopter's supplier capability. On the contrary, a study on the impacts of ICT on Cameroonian enterprises conducted by Faha and Nana (2011) indicated that ICTs have no direct positive effect on business productivity in Cameroon. However, the influence of ICTs on company performance is mostly indirect, depending on how businesses chose to employ the technology and how far they go to incorporate innovation into their business processes.

Simumba and Koopman (2011) who collaborated on these findings further observed that from the performance viewpoint, the competitiveness effect of ICTs derives from the impact that ICTs have upon the output of the factor inputs. In this regard, ICTs can improve efficiency and increase productivity in different ways including, improving efficiency in resource allocation, reducing transaction costs, and technical improvement, leading to the outward shifting of the production function.

According to Maikomo, Targema, and Obun-Andy's (2021) research, sustainable digitization in Nigeria needs a comprehensive strategy to solving fundamental obstacles impeding socioeconomic growth in the nation, such as chronic poverty, structural inequality and class divisions, unequal development between urban and rural areas, low computer literacy and access to information and communications technology (ICTs), inadequate energy supply, and a bad global system.

VI. RECOMMENDATIONS

Based on the findings from the study, it is recommended that there is a need for an all-inclusive engagement with women stakeholders as a matter of fact to identify and address gender-based ICT-related barriers. The municipality must make sure that women's voices are heard and taken into consideration in the decision- and policy-making processes. Stakeholders should conduct inclusive engagements to ensure a balanced participation of both genders on matters of ICT.

VII. CONCLUSION

In this study, it is established that access to ICT especially (mobile devices) is almost universal. However, the depth of knowledge and usage was found to be limited. This is reflected in the low level of adequacy of knowledge measured across all variables-age groups, educational attainment and marital status. Consequently, the huge potential of ICT in economic transformation is constrained.

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