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## Information communication technology (ICT) and womenpreneurship in Nigeria

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## Abstract

Women are gaining information on economic activities in the world and acquiring ways to deal with them through modern and traditional ICT. One of the study objectives is to determine the impact of ICT on womenpreneurship in Edo State, Nigeria. The study was guided by four research objectives and hypotheses. This study adopted the survey design. The target population for the study consists of womenpreneurs beneficiaries of the 2023 Edo Cares in conjunction with NG Cares, Bank of Industry, and SMEDAN Entrepreneurship Empowerment Grant (EPG). The sample size is three hundred (300) beneficiaries in the scheme. The study used content validity and Cronbach alpha statistic which yielded a coefficient of 0.83(83%). Source of data was questionnaire. The hypotheses were tested at 5% significant level using one-sample T-statistic. The results revealed that ICT adoption has significantly increased productivity, and market access and reduced the cost of transactions of womenpreneurs in Edo State. The study recommended that the government in the state should improve the infrastructural base for easy access to ICT and womenpreneurs should embrace ICT and integrate it to grow and sustain their businesses.

Keywords: Entrepreneurship, Information, Communication, Technology, Womenpreneurship

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#### Introduction

ICT is playing a vital role in transforming society's attitude and perception about women. It provides psychological comfort to women in both formal and informal settings by providing them with additional information and abilities. Psychological empowerment can take place at both the (organizational) formal and informal (personal/social) levels. Women are gaining information about all the real updates in the world and acquiring ways to deal with them through the Internet, television, radio, mobile phones, and other means, and it assists them to develop leadership skills for running their businesses (Sarita, 2015). Womenpreneurship refers to a woman's ability and willingness to create and run a business task. No community can grow unless women actively participate in all aspects of life. According to Nehru in Patill (2021), women must be awakened to awaken the people; once they are awakened, the families, communities, and nations move.

Womenpreneurship has acquired traction and importance in recent years as a strategy for creating jobs and increasing productivity at the subnational, national, Sub global, and global levels. Technology is transforming not only the way we work and communicate but also the way individuals think and solve problems. Womenpreneurs can also study a certain skill set and apply it to their company with the help of technology (Dialoke et al., 2017). It is common knowledge that human progress cannot occur without technical innovation and diffusion, but technology does not affect all groups and individuals equally. The twenty-first century has been designated as the women's century, as women are increasingly taking on leadership roles in business and government. Regardless of the size of a business, technology provides both physical and intangible benefits that enable entrepreneurs to make money, produce results, and fulfill clients' demands. Entrepreneurs have become more efficient and effective in growing enterprises in recent times (Zayed et al. 2022; Edeh et al., 2020a).

The potential benefits of ICTs are numerous, including improved access to critical information in areas such as company development, market and pricing intelligence, manufacturing technologies, compliance, forecasting, and training. But how have women entrepreneurs tapped into these advantages to establish and extend their businesses in a country where white-collar employment is scarce, particularly in Edo State, which has embraced digitalization? This is the study's challenge.

#### **Objectives of the Study**

The broad objective of the study is to examine the impact of ICT on womenpreneurship. Specifically, the objectives are:

- 1) To examine the level of integration of ICT by womenpreneurs in Edo State, Nigeria
- 2) To determine if ICT adoption increased the productivity of womenprenuers in Edo State, Nigeria
- 3) To investigate if ICT adoption increased access to the market of womenpreneurs in Edo State, Nigeria
- 4) To explore if ICT adoption reduced transaction cost (overhead cost) of womenpreneurs in Edo State, Nigeria

#### Hypotheses of the Study

The following hypotheses guided the study and were tested at 5% significant level. *HO1:* Womenpreneurs in Edo State have not significantly integrated ICT into their businesses *HO2:* ICT adoption has not significantly increased the productivity of womenpreneurs in Edo State *HO3:* ICT adoption has not significantly increased access to the market of womenpreneurs in Edo State *HO4:* ICT adoption has not significantly reduced

transaction cost (overhead cost) of womenpreneurs in Edo State

## Concept of Information and Communication Technology (ICT)

Information and Communication Technology, also referred to as ICT, is a broad range of technological resources and tools used to create, transfer, store, and manage information. It is now possible to connect to location on Earth in real-time. any Information and communication technology (ICT), a general-purpose technology, has a considerable impact on the economy. It introduces a new paradigm for organizing economic activity, profoundly altering how people think about technology for development. The ICT revolution has necessitated the development of entrepreneurial abilities and a wonderful tool for speeding the growth of entrepreneurship efforts in Nigeria and the world in general (Suleiman, 2018).

## Concept of Womenpreneurship

Women-owned and operated enterprises, or womenpreneurship, comprise between 25% and 33% of formal economy businesses and over 50% of informal sector businesses (Edeh et al., 2020b; Abass, 2019). They engage in full-fledged entrepreneurial endeavours, taking on the risks related to creatively combining resources to maximise the potential present in their local area through the profitable production of goods and services. A significant portion of them is employed by micro, small, and medium-sized firms (MSMEs), which comprise almost 97% of all businesses, 60% of the GDP, and 94% of all jobs. Women in entrepreneurship typically operate home-based businesses (HBBs) to micro, small, and medium-sized enterprises (MSEs) (Okafor & Mordi, 2010).

## ICT and Womenpreneurship

ICTs, both new and old, give women entrepreneurs new opportunities to launch and grow businesses. Without the use of ICTs, female entrepreneurs would not be able to expand their consumer bases, increase their productivity, or grow their businesses. ICTs transforming the global business are landscape at a rapid pace by acting as potent instruments that shape and impact people's lives. careers, business dealings, and communication. ICTs are swiftly becoming a crucial tool for female company owners looking to launch and run a successful enterprise. ICTs have a wide range of potential advantages, including better access to vital information for corporate expansion, pricing and marketing research. manufacturing technologies, compliance, forecasting, and training. Affordable access to ICTs can improve the effectiveness of communication and business management for female entrepreneurs throughout the value chain (Edeh & Dan-Jumbo, 2019). Due to the growing digitalization of services and information in the public and commercial sectors, female entrepreneurs who do not have access to digital skills could find themselves pushed out of business.

ICTs computers, the internet, and mobile phones in particular are essential for accelerating business expansion. ICTs are especially well-suited to help women entrepreneurs overcome obstacles that are specific to them or that impact them more than men, such as restricted access to skill development; time constraints (resulting from juggling work and family obligations); mobility limitations; restricted access to markets, finance, and information; and cultural and attitudinal barriers, such as preconceived notions about women's roles in entrepreneurship. ICT offers the instruments required for business operations and competitiveness. Some benefits of adopting ICTs for business include time savings, overcoming distance, providing access to new markets and information, enabling remote connections with people, and reducing transaction costs. ICT has the potential to help womenpreneurs overcome several obstacles, including time constraints brought on by their varied responsibilities, social stigma, limited mobility, and restricted access to information, education, funding, skill training, and current and future markets.

Adopting ICT as a platform or supporting tool for their businesses may be very beneficial for entrepreneurs in general, and women entrepreneurs in particular. This is especially true in the areas of communications, company development, access to financing, health, and education. Additionally, female entrepreneurs can expand their businesses overseas by leveraging online channels. ICTs have opened a world of opportunities for women's development. It is a powerful

catalyst for the growth of gender equality and the political and social empowerment of women (Women 2000 and Beyond, 2005). The increased use of technology has greatly helped women, and IT has changed the traditional roles that women play (Maier & Reichert, 2008). ICT is being used by women more and more for business-related tasks like drafting reports, budgeting, planning, evaluating issues and their solutions, storing and retrieving data, and composing letters and memos (Ndubisi & Kahraman, 2015). Since ICTs make it easier for people to communicate and share essential information for marketing, buying, and the creation and dissemination of knowledge, they have played a significant role in the advancement of women (Uluma, 2012). ICT has changed how female entrepreneurs engage, work, purchase, and consume (Goswani & Dutta, 2015). Women rely substantially on information and communication technology (ICT) to launch successful economic undertakings; women entrepreneurs in Southern Nigeria use ICT for their firms at a rate far higher than that of their counterparts in Northern Nigeria.

## **Theoretical Framework**

The Entrepreneurial Cognition Theory (Baron, 2004) was applied to this study. This theory states that people are the driving force behind entrepreneurial endeavours and that people are the ones who would want to use technology tools to grow their businesses. This idea holds that entrepreneurs can connect and communicate with other important stakeholders in business improvement with ICT. Moreover, the application of ICT in business provides a

favourable environment for entrepreneurship (Amit & Zott, 2011). Consequently, the innovative use of ICT by entrepreneurs has led to e-commerce (Martinez & Williams, 2010). Given that the purpose of this article is to examine ICT use among female entrepreneurs in Nigeria, with a particular focus on Edo State, the Entrepreneurship Cognition Theory is considered pertinent to the adoption of ICT in business. According to Krueger (Krueger, 2005). the Entrepreneurship Cognition Theory imparts in a person the psychology of recognising opportunities to investigate. Entrepreneurs, for instance, seem to identify opportunities based on environmental cues or signals that they filter and analyse via many systems. Therefore, it is possible to view the ICT revolution in business development as the outcome of thought processes that occur from entrepreneurial acts.

empirical studies were However, also reviewed. The use of information and communication technology by women as social entrepreneurs was examined by Igbokwe and Adolalom (2023). The results of their investigation revealed that information and communication technology significantly predicted social entrepreneurship. Isa et al. examined how (2021)ICT affected Malaysian women company owners' ability to operate their companies. Their results show that ICT has a significant positive effect on women entrepreneurial business in Malaysia. Omiunu (2019) investigated the impact of ICT on the performance of women-owned SMEs in Southwest Nigeria and found that ICT positively enhanced their performance.

The role of information and communication technology in empowering women in small and medium-sized enterprises (SMEs) in emerging economies was examined by Crittenden et al. (2019). The study examined how empowerment, social capital, and selfefficacy are affected by information and communication technology (ICT) in the marginalised setting of female microentrepreneurs. Their results showed that women's decisions about ICT usage were influenced by their perceptions of the technology's usability and convenience of use. Moreover, ICT usage had a significant direct impact on social capital bonding and selfefficacy, whereas self-efficacy reduced the impact of ICT usage on social capital bridging. Self-efficacy and social capital bridging and bonding had distinct effects on women's empowerment as determined by goal internalisation, perceived control. competence, and impact. Etim et al. (2018) examined how Uyo women's entrepreneurship used information and communication technologies. In total, 50 female business owners in Uyo, Nigeria, were specifically chosen as study participants. Semi-structured questionnaires were used in a quantitative study design to determine how ICT affects the entrepreneurial endeavours of women. Both descriptive and inferential statistics were applied to interpret the original data. The p-value was 0.245, which is greater than 0.05. The Wald value was =1.353. The Wald chi-square test rejected the null hypothesis due to the p-value, indicating that the usage of ICT technology had no discernible impact on the entrepreneurial activities of women entrepreneurs in the educational ecosystem.

## Methodology

This study adopted the survey design. The target population for the study consists of all the women entrepreneurs' beneficiaries in the 2023 Edo Cares in conjunction with NG Cares, Bank of Industry and SMEDAN Entrepreneurship Empowerment Grant (EPG). The stratified sampling technique was used to determine the sample size of three hundred (300) womenpreneurs. Edo state was stratified into three based on senatorial districts (Edo South, Edo North, and Edo Central). From each senatorial district, one hundred (100) womenpreneurs were selected purposively (based on willingness and readiness) making a total of three hundred (300) considered for the study. All the participants gave their consent to participate in the study without being coerced.

## Validity and Reliability of the Instrument

The study used content validity in the determination of the validity of the instrument. For the reliability of the instrument, thirty (30) respondents were chosen outside the sample space and were determined using the cronbach alpha statistic which yielded a coefficient of 0.83(83%). this meant that the instrument was reliable.

## Method of Data Collection and Analysis

The source of data was primary source through a questionnaire designed by the researchers. The instrument consisted of four (4) sections. Section A covers the bio-data of the respondents while sections B and D covered questions on the objectives of the study. Sections B to D were designed using four Likert formats (strongly agree, agree, disagree and strongly disagree). The

researcher employed descriptive statistics such as frequency distribution and percentage for the bio-data profile of the respondents while mean and standard deviation was used to analyse the objectives of the study. The hypotheses were tested at a 5% significant level using one-sample t-statistic. The for is benchmark the mean 2.5 ((4+3+2+1)/4). Three thousand (300)questionnaires were distributed and two hundred and eighty-five (285) were duly completed and retrieved back after careful monitoring and supervision. This represented 95% response rate.

#### Results

For age, the result revealed that 21-30 years had thirty-six (36) representing 12.6%, 31-40 years had forty-eight (48) representing 16.8%, 41-50 years had one hundred and seven (107) representing 37.5%, and above 50 years had ninety-four (94) representing 33.0%. This meant that there were more womenprenuers within the age range of 41-50 years in the survey. For education, the result revealed that twenty-three (23) representing 8.1% were primary six leaving certificate (PSLC) education holders, one hundred and fourteen (114) representing 40% were secondary eighty-four education holders. (84) representing 29.5% were OND/NCE holders. Sixty-one (61) representing 21.4% were HND/First degree holders and three (3) representing 1.1% were masters and above holders. This revealed that most of the respondents were secondary education holders. For ICT usage or integration, the eighty-five result revealed that (85) representing 29.8% do not use or integrate ICT into their business, while two hundred (200) representing 70.2% do use or integrate ICT into their business. This meant that of the womenprenuers do make or integrate modern ICT (computer, mobile phones, internet) or traditional ICT (radio and television) into their businesses. This meant that womenprenuers in Edo state do significantly make or integrate modern ICT (computer, mobile phones, internet) or traditional ICT (radio and television) into their businesses.

No	Variable	Frequency	Percentage
1	Age:	36	12.6
	21-30	48	16.8
		107	37.5
	31-40	94	33.0
	41-50		
	Above 50		
2	Education:	23	8.1
	PSLC	114	40.0
		84	29.5
	SSCE	61	21.4
		3	1.1
	OND/NCE		
	HND/First		
	degree		
	Masters &		
	above		
3	ICT usage	200	70.2
	Yes	85	29.8
	No		

#### Table 1: Bio-Data result

Source: Researchers' Computation 2022

# ICT adoption and productivity of womenpreneurs in Edo State

The summary of Table 2 revealed that information communication technology (ICT) significantly increased the productivity of womenpreneurs in Edo state. A breakdown of the results showed that the womenpreneurs agreed that the use of ICT has made it possible do business anywhere: they to are comfortable making use of ICT tools; the use of ICT has increased their productivity; the use of ICT has increased their business network; through ICT they have found new suppliers; they used ICT to search for innovative ideas about my business to expand it; Through ICT they accessed training in my kind of business in-order to increase productivity and they used ICT to look for new business models that are suitable for my business.

#### Table 2: ICT and productivity

No	Items	Ν	mean	p-
				value
1	ICT has made it			
	possible for me to			
	do my business	285	3.0772	.000
	anywhere and			
•	anytime			
2	My business has			
	grown ever since I	284	2.3521	.000
	began making use of ICT tools			
3	The use of ICT			
5	has increased my	285	2.9333	.000
	productivity	200	2.7555	.000
4	The use of ICT			
-	has increased my	285	3.1333	.000
	business network			
5	Through ICT I			
	have found new	282	2.9716	.000
	suppliers			
6	I used ICT to			
	search for			
	innovative ideas	285	2.8772	.000
	about my business	205		
	in order to expand			
	it			

7	Through ICT I			
	accessed training			
	in my kind of	285	2 9228	.000
	business in-order	205	2.9220	.000
	to increase			
	productivity			
8	I used ICT to look			
	for new business			
	models that are	285	2.8070	.000
	suitable for my			
	business			
	Average	285	2.88	.000

*Benchmark is 2.5 for mean and significant at 5% significance level* 

## ICT adoption and increased access to the market of womenpreneurs

The summary of Table 3 revealed that information communication technology (ICT) significantly increased access to the market in Edo state, Southern Nigeria. A breakdown of the results revealed that the womenpreneurs agreed that they reach their customers better and easier with ICT usage; the use of ICT tools has improved communication with customers; they use ICT to reach their prospective customers very fast; the use of ICT in business has made them contact more customers; the use of ICT has improved their marketing and business network; through ICT they have found new suppliers and customers; they used ICT to search for innovative ideas about my business to expand it and used ICT to look for new business opportunities that are suitable for my business.

#### Table 3: ICT and Access to the Market

Table 3: ICT and Access to the Market						
No	Items	Ν	Mean	<b>p-</b>		
				value		
1	I reach my					
	customers better	285	2.5439	.000		
	and easier with ICT	205	2.3439	.000		
	usage					
2	ICT has enhanced					
	my communication	282	3.0993	.000		
	with customers					
3	I use ICT tools to					
	reach my current	201	2 1252	000		
	and potential	281	3.1352	.000		
	customers easily					
4	The use of ICT in					
	business has made	205				
	me to contact more	285	3.0737	.000		
	customers					
5	The use of ICT has					
	improved my	281	2.7936	.000		
	marketing					
6	The use of ICT has					
	increased my	281	2.8683	.000		
	business network					
7	Through ICT I have	285	2.9509	.000		
	found new suppliers	203	2.9509	.000		
8	Through ICT, I					
	have found new	281	2.8577	.000		
	customers					
9	I used ICT to search					
	for innovative ideas	285	2.9754	.000		
	about my business	205	2.9734	.000		
	in-order to expand it					
10	I used ICT to look					
	for new business					
	opportunities that	285	2.9053	.000		
	are suitable for my					
	business					
	Average	283	2.920	.000		
Benchmark is 2.5 for mean and significant at 5%						

Benchmark is 2.5 for mean and significant at 5% significance level

## ICT adoption and reduced transaction cost (overhead cost) of womenpreneurs

Results in Table 4 demonstrated that the use of ICT tools by women entrepreneurs in Edo State, Nigeria has drastically reduced expenditures especially as it concerns time saving, energy, comfortability, cost saving and efficiency.

Table 4: ICT	and reduced	transaction	cost
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1	I reach my customers better			
	customers better			
		285	2.7649	.000
	and easier with	205	2.7049	
	ICT usage			
2	I am more			
	relaxed and			
	comfortable	285	3.2351	.000
	because of ICT			
	tools			
3	Information			
	dissemination is	285	2.4491	.000
	now easier and	200	2.11/1	.000
	better with ICT			
4	Use of ICT has			
	saved me	285	2.2561	.000
	money in my	200		.000
	business			
5	The use of ICT			
	has saved me	285	3.3684	.000
	time in my	200	0.0001	.000
	business			
6	The used of		3.1368	
	ICT in my	285		.000
	business saves	205		
	me energy mark is 2.5 for mean and			

Benchmark is 2.5 for mean and significant at 5% significance level

#### **Discussion of Findings**

using the entrepreneurs' Bv women beneficiaries of the 2023 Edo Cares in conjunction with NG Cares, the Bank of Industry, and SMEDAN Entrepreneurship Empowerment Grant (EPG), the study has been able to empirically investigate the impact of information communication technology (ICT) on womenpreneurship in Nigeria with a special reference to Edo State. The results showed that the women entrepreneurs had incorporated ICT to a considerable extent. The findings also showed that women entrepreneurs in Edo State have seen a considerable improvement in productivity, easier access to markets, and lower transaction costs because of ICT adoption.

This is at odds with a study by Etim et al. (2018) that investigated how ICT was incorporated into the entrepreneurship of Uyo women. They discovered that using ICT technologies had no appreciable impact on the entrepreneurial activity of Uvo womenpreneurs in the educational sector. This study, however, is consistent with the findings of Crittenden et al. (2019) which revealed that women's perceptions of the usefulness and ease of use of ICTs had a significant direct impact on social capital bonding and self-efficacy.

Additionally, this study supported the findings of Isa et al. (2021) who investigated the effect of ICT on the performance of Malaysian women entrepreneurs. Their results show that ICT has enhanced the profit and sustainability of businesses owned by women.

#### **Conclusion and Recommendations**

Womenpreneurship is the capacity and willingness of women to develop and manage business ventures. It is an age-old saying that no society can progress without the active participation of women in all spheres of life. In recent years the Edo state government has tried to digitalize the state which has directly or indirectly assisted most womenpreneurs to grow and sustain their businesses.

The study found that the womenpreneurs have significantly integrated ICT into their businesses and equally benefited from the usage of ICT in their businesses too. However, а reasonable amount of womenpreneurs in Edo state do not have access to ICTs due to a variety of barriers as such the infrastructural, and high cost of access to ICT, to mention but a few. The study recommends that womenpreneurs should embrace and integrate ICT into their businesses and the government should improve the infrastructural (power. connectivity) base of ICT in the state for ease of access to ICT and the benefits of ICT integration in businesses. These gestures will help reduce poverty, inequality, and unemployment in the state and beyond.

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