

Information and Communication Technology as a Means for Creating Job Opportunities in Borno State, Nigeria

Chinda Vwa Gadzama¹, Samuel Kile², Joshua Jimba³, Yahaya Umaru⁴, Yusuf Philemon⁵

¹National Open University of Nigeria, Faculty of Computing, Department of Information Systems and Technology Abuja, Nigeria

² Department of Computer Science, University of Maiduguri, Borno, Nigeria

³Federal University Lokoja, Kogi, Nigeria

⁴National Open University of Nigeria, Faculty of Computing, Department of Information Systems and Technology Abuja, Nigeria

⁵ Department of Computer Science, Faculty of Science, Adamawa State University Mubi, Nigeria

ABSTRACT

This study examined information and communication technology as a tool for creating job opportunities in Borno state, Nigeria: A Case Study of Maiduguri. The specific objectives were to determine the extent to which ICT contributes to job creation among youths, assess how ICT skills influence youth entrepreneurship, examine ICT's role in supporting innovation and start-ups, and evaluate ICT's effectiveness in reducing youth unemployment. The study adopted a descriptive survey design and targeted ICT-inclined youths within Maiduguri metropolitan. A total population of over 899,000 potential respondents was identified, from which a sample size of 400 was selected using Taro Yamane's formula and stratified random sampling technique to ensure adequate representation. A structured questionnaire based on a 4-point Likert scale was used as the instrument for data collection, and its reliability was confirmed with a Cronbach Alpha coefficient of 0.83. Data were analysed using both descriptive statistics mean and standard deviation to answer research questions, and inferential statistics Chi-square, Logistic regression and Pearson correlation and to test hypotheses at 0.05 significance level. Findings revealed that ICT significantly contributes to youth job creation ($r = 0.672$, $p < 0.05$), enhances entrepreneurship ($\beta = 0.614$, $p < 0.05$), and plays a strong role in reducing unemployment ($\chi^2 = 42.87$, $p < 0.05$). The study concluded that ICT is a transformative tool for youth empowerment and sustainable development in conflict-affected regions. It recommended that government should invest in ICT infrastructure and training; educational institutions should integrate digital skill development into curricula; private sector stakeholders should support ICT-based start-ups; and NGOs should prioritize ICT in their youth empowerment programs to curb unemployment and foster innovation in Maiduguri and similar environments.

KEYWORDS

Digital Entrepreneurship, ICT Skills Empowerment, Information Communication Technology (ICT) and Youth Unemployment

I. INTRODUCTION

Information and Communication Technology (ICT) has rapidly transformed global economies, especially in emerging markets. It is no longer just a support tool but a core driver of productivity, job creation, and digital entrepreneurship. The rapid spread of wireless technologies like Wi-Fi and Bluetooth has greatly expanded the ways people can log on to systems and share services across different devices and platforms. Tools such as broadband, cloud services, and mobile platforms are opening new work avenues, including for previously excluded populations.

Digitalisation has enabled jobs across sectors like education, agriculture, business, and healthcare. It has however, removes geographic barriers, letting rural residents compete in global job markets. Government-driven digital programs have provided African youth with market-relevant skills, hence decreasing unemployment, and promoting inclusion and diversity amongst job seekers. Nigeria's youthful demographic and expanding internet accessibility offer significant prospects and optimal solution for job growth driven by ICT. Romanus (2023) confirmed that smartphone use and digital platforms are new prospects in digital marketing, freelancing, and as well software development. Meanwhile, Taofeeq and Olayinka (2022) underline that training programs are highly educating Nigerian youth with the relevant skills needed for the digital economy. The rise or increase of fintech and e-commerce further shows the significant potential of this sectors.

Employers now demand digital literacy as a standard and prerequisite for employment. Oyekunle and Lawal-Adebawale (2021) observe that digital skills are often required from job seekers. Innovation hubs also act as incubators for youth entrepreneurship, showing how ICT supports both formal and informal work. In addition, social Medias and digital platforms are helping people grow small businesses into formal enterprises. ICT-based has made remote work and global collaboration common. Meanwhile COVID-19 accelerated this trend. Obajuluwa et al. (2020) note more Nigerians now work online as freelancers or virtual assistants. According to Oghenekome and Valentine (2025), participation in the gig economy is rising. ICT has also offered more inclusive opportunities for women and individuals with disabilities by reducing physical job barriers.

A Post-Conflict Digital Opportunity particularly Maiduguri, Borno State's capital, is emerging after years of insurgency. ICT gives optimism for employment development and economic restoration. Mwesha et al. (2025) report digital skills are helping individuals restore livelihoods, however improvement is hampered by weak infrastructure. The Borno State ICT Development Agency (BICTDA) is striving to alleviate this gap through digital training program, while problems remain. International groups are stepping in. In 2023, IOM and Cisco established a digital skills initiative for internally displaced persons (IDPs) and host communities. Through Cisco's Networking Academy, it taught 150 workers and created three digital labs in Borno. The program aims to encourage entrepreneurship and resilience through public-private partnerships.

Mohammed et al (2021) argues that, not all IDPs gain equally. Self-settled IDPs frequently prosper more than those in camps due to improved social, and as well environmental conditions. Using the Capability Approach, she argues that real empowerment comes not

just from resources but from reducing barriers to agency. This perspective is crucial for designing effective ICT interventions. Oni et al. (2020) highlight gaps in lack of cohesive national digital policies as well as strategies and efficient execution of existing ICT roadmaps. Despite commendable attempts, structural and policy-level weaknesses restrict impact. National plans like the Digital Economy Policy 2020–2030 set ambitious targets, but low funding, weak governance, and bureaucracy delay implementation. In Maiduguri, most ICT efforts are donor-driven and isolated from government planning. Regulatory obstacles also discourage local start-ups.

Sackflame (2022) points out that ongoing conflict in the North Eastern Nigeria, particularly Maiduguri, Borno State undermines Sustainable Development Goals (SDGs), especially SDGs 1, 2, 3, 4, 6, and 16. Displacement has worsened poverty and restricted access to services. However, ICT-based employment offers a scalable way to empower youth and promote long-term recovery.

The significance of ICT is not just a tool but a pathway to employment, inclusion, and as well stability particularly in post-conflict settings like Maiduguri, Borno State. Information and Communication Technology (ICT) has, in recent years, emerged globally as a leading driver of economic growth, but its same dynamism has yet to be fully tapped in Nigeria to resolve long years of unemployment. While most countries attribute growth in internet use to a parallel growth in new jobs and companies online, Nigeria's experience has been patchy, with spasmodic adoption rather than a blanket, sustained drive. Mwesha et al. (2025) further state that Nigeria has Africa's largest young population and great rates of online connectivity, unfortunately, ICT has hardly made a dent as a panacea to unemployment, especially in poor states.

The deficit grows in states such as Borno, where people uncommonly employ ICT to generate work. Taofeeq and Olayinka (2022) emphasized that despite the numerous adoptions of ICT in various sectors in Nigeria, the skills required and acquired for employ-ability have not translated into long-term employment for the majority of the trainees. These observations are pinpointing a disquieting disconnect between ICT deployment in the Nigeria economy and real value. This further portrays inadequate infrastructure, uneven digital capabilities, and training policies not aligned with the labour markets' pressing necessities.

In principle, information and communication technology (ICT) ought to work as a game-changing engine for youth employment by opening pathways into digital markets, remote jobs, and technology-driven start-ups. Yet in Maiduguri the picture is much harsher, with weak networks, patchy device skills, and low awareness of online opportunities thwarting progress. Sen et al. (2020) note that scattered programmes have tried to fill these gaps, but their results are still piecemeal and poorly documented. More fundamentally, solid evidence on how ICT projects actually lift job numbers in conflict-hit areas such as Borno is almost non-existent.

This research aims to examine how ICT serve as a tool for creating job opportunities and rebuild livelihoods in Borno State, Nigeria, addressing both the opportunities and limits within this specific socio-economic milieu. The study was guided by the following objectives: to assess the current state of ICT infrastructure and digital literacy in Borno State; to identify

the major barriers hindering the use of ICT for job creation in Maiduguri; to evaluate the impact of existing ICT-driven initiatives on employment and entrepreneurship, and to propose actionable strategies for enhancing ICT adoption and maximizing its role in job creation.

Research questions for the study include: What is the Current State of ICT Infrastructure and Digital Literacy in Borno State? What are the major Barriers Hindering ICT Use for Job Creation in Maiduguri? What are the impacts of existing ICT-driven initiatives on employment and entrepreneurship in Maiduguri? What are the actionable strategies to enhance ICT adoption and maximize job creation?

The study tested the following null hypothesis at the 0.05 significant level:

- Ho1: The level of ICT infrastructure and digital literacy in Maiduguri is low.
- Ho2: There are significant barriers hindering the use of ICT for job creation in Maiduguri.
- Ho3: The existing ICT-driven initiatives have a positive impact on employment and entrepreneurship in Maiduguri.

II. LITERATURE REVIEW

ICT encompasses tools and systems for creating, processing, storing, and transmitting data ranging from fibre cables and satellites to cloud applications. Rogers (2003) Innovation Diffusion Theory (IDT) explains the process and factors that enable a new technology or innovation to be adopted by society or a particular system over time. In this context, ICT as an innovation undergoes a systematic adoption process driven by perception, social influence, information flow, and support from civil bodies. The theory explains five classes of adopter's innovators, early adopters, early majority, late majority, and laggards all governed by unique motivations and constraints for the adoption of ICTs and their use. In this context, ICT as an innovation undergoes a systematic adoption process driven by perception, social influence, information flow, and support from civil bodies. The theory explains five classes of adopter's innovators, early adopters, early majority, late majority, and laggards all governed by unique motivations and constraints for the adoption of ICTs and their use.

It is recognized as a driver of innovation, start-up growth, and socio-economic transformation in middle-income nations. According to Kazeem-Tijani et al., (2020), experts categorize ICT into four key areas: software, hardware, networking, and information systems. These form the backbone of the modern knowledge economy, enhancing productivity, communication, and service delivery.

Adesina et al. (2022) posited that employment is productive work that contributes to income generation and economic growth, a view also supported by Mwesha et al. (2025). Beyond wages, it offers skill development, career progression, and improved living standards. In view of this, Kazeem-Tijani et al. (2020) stated that job creation stems from market forces, government policies, and technology. In Nigeria, unemployment and underemployment

among youth remain critical challenges, necessitating the integration of digital tools, globalization, and supportive policies into employment strategies, which hopes to be a panacea towards this problem, as expressed by Romanus.

So many ICT-Driven Sectors are contributing to Job Creation in Nigeria such as the E-Commerce and Online Marketplaces, where Andrew et al. (2023) emphasized that ICT has revolutionized commerce by enabling online transactions, lowering costs, and fostering entrepreneurship. In addition, Igboeli & Bisallah, (2020) stated that these platforms support quick store setup, cloud-based inventory, and social media marketing, creating jobs in delivery, payment systems, and advertising. E-commerce also supports women's entrepreneurship and AI skill demand.

In the software development and the app economy, Adesina et al. (2022), also Yahaya et al., (2022) opined that the software sector is expanding through coding schools, innovation hubs, and online learning. Collaborating this view, Yahaya et al. (2022) informed that career paths include programming, UI/UX design, and cyber security, adding that emerging technologies like AI and block chain are integrated into curricula, lowering entry barriers and enabling financial independence.

For digital content creation and the influencer economy. Stated that platforms like YouTube and Tik Tok offer monetization avenues for creative work, while ICT tools enable content production, marketing automation, and audience engagement. This sector fosters cultural exports and cross-border collaborations, in the opinion of Makinde et al. Oye et al. (2023) highlighted that ICT skills critical thinking, data processing, and digital literacy are vital for employability, and that success in the modern workplace requires not only qualifications but also practical knowledge and attitudes. Targeted skill acquisition boosts digital entrepreneurship and job market flexibility. As a matter of fact, Oghenekome and Valentine (2025) informed that initiatives like Code Lagos and N-Power Tech demonstrated the transformative impact of ICT training on entrepreneurial aspirations. Thus, it can be seen that inclusive ICT education fosters civic engagement, reduces marginalization, and strengthens democratic participation, as expressed by Adesina et al. (2022).

Andrew et al. (2023) in their study revealed that ICT fosters direct and indirect employment across sectors, and that urban youth benefit from ICT-focused entrepreneurship programs, leading to small business creation and freelancing opportunities. Because of this, Soyele (2025) and Romanus (2023) stated that there is a growing demand for ICT professionals, alongside the rise of digital micro-businesses. But for this to be achieved, Irele (2021) emphasized that schools play a key role by integrating practical ICT skills into curricula, thereby enhancing employability in areas like digital marketing and multimedia. Bridging the digital divide through infrastructure investment and community training is essential for inclusive ICT-driven employment growth.

In essence, ICT in Nigeria particularly in Borno State has significant potential to generate employment by creating new sectors, enhancing productivity in existing ones, and equipping youth with relevant skills. However, maximizing these benefits requires infrastructure investment, inclusive training programs, and supportive policies that integrate ICT into broader economic development strategies.

III. METHODOLOGY

This study adopts a descriptive survey research design, which is appropriate for collecting data on existing conditions, perceptions, and practices regarding ICT-driven job creation. The design facilitates the use of structured questionnaires to capture the views of a broad population sample, thus enabling the researcher to assess patterns and relationships among variables of interest. The approach allows for both qualitative and quantitative interpretation of findings to draw meaningful conclusions.

The target population comprises residents of Maiduguri, particularly youths between the ages of 18 and 40 who are actively engaged in or seeking ICT-related employment. According to the [macrotrends.net \(2025\)](#), Maiduguri has an estimated population of over 899,000, with a significant proportion being youth and working-age adults. This includes both current and aspiring entrepreneurs, employees in ICT-enabled roles, job seekers utilizing ICT platforms, and representatives from organizations involved in ICT-driven employment initiatives. The population also covers key stakeholders such as government agencies, private sector companies, ICT training centres, and non-governmental organizations (NGOs) that play significant roles in promoting digital skills and employment opportunities. The instrument of study is a self-developed questionnaire. The questionnaire is designed to collect data related to the research questions. It is made up of five sections with each section addressing a research objective. The questionnaire was developed on a 4-point Likert scale with options including Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD). These items addressed the research objectives and was administered to the respondents on a face-to-face basis.

The collected data was analysed using both descriptive and inferential statistical techniques. Descriptive statistics, such as frequencies, percentages, means, and standard deviations, was used to summarize and present the demographic characteristics of the respondents and their opinions. Inferential statistics, such as Chi-square, and Logistics Analysis was used to test the hypothesis. The data was analysed using statistical software such as SPSS (Statistical Package for the Social Sciences). The results are presented in tables, charts, and graphs for easy interpretation.

IV. RESULTS AND DISCUSSION

A. Response Rate

The table below shows the summary of the survey. A sample of 400 was calculated for this study. A total of 380 responses were received and validated. For this study a total of 380 was used for the analysis.

Table 1: Response Rate

Questionnaire	Frequency	Percentage
Sample size	400	100
Received	380	95
Validated	380	95

Source: Field Survey, 2025

B. Data Analysis

1. Research Question One:

What is the current state of ICT infrastructure and digital literacy in Borno State?

Table 2: Analysis for Research Question One

S/N	Statement	SA	A	D	SD	Mean	Std. Dev.
1	Internet access is reliable and widely available in Maiduguri.	95 (25%)	110 (28.9%)	115 (30.3%)	60 (15.8%)	2.63	1.05
2	There are enough ICT training centers available for public use.	70 (18.4%)	100 (26.3%)	130 (33.4%)	80 (21.1%)	2.45	1.02
3	Public institutions in Maiduguri are well-equipped with ICT tools.	60 (15.8%)	90 (23.7%)	145 (38.2%)	85 (22.4%)	2.35	1.00
4	Most youths in Maiduguri are digitally literate.	110 (28.9%)	130 (34.2%)	90 (23.7%)	50 (13.2%)	2.84	1.01
5	Government has significantly improved digital infrastructure.	85 (22.4%)	120 (31.6%)	105 (27.6%)	70 (18.4%)	2.60	1.04

Source: Field Survey, 2025

Table 4.3 shows mixed views on ICT infrastructure and digital literacy in Borno State. About half of respondents agreed that internet access in Maiduguri is reliable (mean = 2.63), while opinions on ICT training center availability were less positive (mean = 2.45). Most respondents disagreed that public institutions are well-equipped with ICT tools (mean = 2.35).

Youth digital literacy received a relatively high rating (mean = 2.84), indicating strong human capital potential. Government improvement of digital infrastructure was viewed moderately positively (mean = 2.60). Overall, while youth digital skills are seen as a strength, gaps remain in infrastructure, institutional capacity, and training access, which must be addressed to fully leverage ICT for job creation and economic growth in the region.

2. Research Question Two:

What are the major barriers hindering the use of ICT for job creation in Maiduguri?

Table 3: Analysis for Research Question Two

S/N	Statement	SA	A	D	SD	Mean	Std. Dev.
1	Poor electricity supply affects ICT operations and training.	140 (36.8%)	130 (34.2%)	70 (18.4%)	40 (10.5%)	2.99	0.96
2	Insecurity in Maiduguri limits digital engagement and mobility.	150 (39.5%)	120 (31.6%)	60 (15.8%)	50 (13.2%)	2.99	1.00
3	High cost of data/internet discourages digital participation.	135 (35.5%)	125 (32.9%)	70 (18.4%)	50 (13.2%)	2.90	1.01
4	Limited access to ICT gadgets hinders online work opportunities.	120 (31.6%)	130 (34.2%)	80 (21.1%)	50 (13.2%)	2.82	1.00
5	Lack of government support weakens ICT-driven entrepreneurship.	110 (28.9%)	125 (32.9%)	90 (23.7%)	55 (14.5%)	2.74	1.02

Source: Field Survey, 2025

Table 4.4 shows that major barriers hinder ICT-driven job creation in Maiduguri. Respondents strongly agreed that poor electricity supply (mean = 2.99) and insecurity (mean = 2.99) significantly limit ICT use and engagement. High internet/data costs (mean = 2.90), limited access to ICT gadgets (mean = 2.82), and lack of government support (mean = 2.74) were also identified as key constraints.

Overall, structural, financial, and security challenges remain major obstacles to leveraging ICT for employment, making their resolution essential for boosting job creation and economic growth in the region.

3. Research Question Three:

What is the impact of existing ICT-driven initiatives on employment and entrepreneurship in Maiduguri?

Table 4: Analysis for Research Question Three

S/N	Statement	SA	A	D	SD	Mean	Std. Dev.
1	ICT training programs have improved job skills among youth.	125 (32.9%)	150 (39.5%)	65 (17.1%)	40 (10.5%)	2.99	0.94
2	Government and NGO digital initiatives have empowered entrepreneurs.	110 (28.9%)	140 (36.8%)	80 (21.1%)	50 (13.2%)	2.82	1.01
3	Access to online marketplaces has helped local businesses thrive.	105 (27.6%)	130 (34.2%)	90 (23.7%)	55 (14.5%)	2.74	1.03
4	Freelancing platforms have created viable job opportunities.	120 (31.6%)	135 (35.5%)	80 (21.1%)	45 (11.8%)	2.84	0.98
5	ICT initiatives have contributed to reducing unemployment rates.	100 (26.3%)	125 (32.9%)	90 (23.7%)	65 (17.1%)	2.66	1.04

Source: Field Survey, 2025

Table 4.5 shows that ICT-driven initiatives positively impact employment and entrepreneurship in Maiduguri. Respondents agreed that ICT training programs improve youth job skills (mean = 2.99), government/NGO initiatives empower entrepreneurs (mean = 2.82), online marketplaces support local business growth (mean = 2.74), and freelancing platforms create viable jobs (mean = 2.84). ICT initiatives are also seen to help reduce unemployment (mean = 2.66), though the impact is still developing. Overall, these programs are boosting employability and entrepreneurship, but greater investment in infrastructure, training, and support is needed to maximize their benefits.

4. Research Question Four:

What actionable strategies can enhance ICT adoption and maximize its role in job creation?

Table 5: Analysis for Research Question Four

S/N	Statement	SA	A	D	SD	Mean	Std. Dev.
1	Increased government investment in ICT	140 (36.8%)	150 (39.5%)	55 (14.5%)	35 (9.2%)	3.04	0.91

	infrastructure is essential.						
2	Subsidizing data and gadgets will increase ICT accessibility.	130 (34.2%)	145 (38.2%)	65 (17.1%)	40 (10.5%)	2.96	0.95
3	Expanding ICT training to rural areas will promote inclusive job growth.	120 (31.6%)	135 (35.5%)	75 (19.7%)	50 (13.2%)	2.84	1.01
4	Creating tech hubs/incubators can drive youth-led innovation.	115 (30.3%)	130 (34.2%)	85 (22.4%)	50 (13.2%)	2.79	1.03
5	Public-private partnerships can accelerate digital job creation.	105 (27.6%)	125 (32.9%)	95 (25%)	55 (14.5 %.)	2.70	1.05

Source: Field Survey, 2025

Table 4.6 shows strong support for strategies to boost ICT adoption for job creation in Maiduguri. Respondents prioritized increased government investment in ICT infrastructure (mean = 3.04) and subsidizing data and gadgets (mean = 2.96) to address access barriers.

Expanding ICT training to rural areas (mean = 2.84), creating tech hubs/incubators (mean = 2.79), and fostering public-private partnerships (mean = 2.70) were also endorsed. Overall, the findings emphasize infrastructure, affordability, and inclusive training as key priorities for maximizing ICT's job creation potential.

C. *Test of Hypothesis*

1. *Decision Rule:*

Accept the alternate hypothesis if p-value is less or equal to .05. Sig. Level, or Reject the null hypothesis if the p-value is greater than .05. Sig. Level.

2. *Hypothesis One*

H₀₁: The level of ICT infrastructure and digital literacy in Maiduguri is low.

Table 6: Summary of the Chi-square test on whether the level of ICT infrastructure and digital literacy in Maiduguri is low

Variables	Observed F	Expected F	Df	X ²	P-value
Agree (Low ICT Infrastructure)	256	190	1	21.68	0.000
Disagree (ICT Infrastructure adequate)	124	190			
Total	380				

The Chi-square test shows a significant perception that ICT infrastructure and digital literacy in Maiduguri are low ($\chi^2 = 21.68$, $p = 0.000$). The null hypothesis was rejected, confirming respondents believe these are significantly inadequate. This underscores the urgent need for infrastructural development and digital skills programs to enable ICT-driven job creation.

3. Hypothesis Two

H₀₂: There are significant barriers hindering the use of ICT for job creation in Maiduguri.

Table 7: Logistic Regression Analysis on Whether There Are Significant Barriers Hindering the Use of ICT for Job Creation in Maiduguri

Predictor Variable	B	S.E.	Wald	df	Sig. (p-value)	Exp(B)
Cost of internet and data subscription	1.274	0.342	13.90	1	0.000	3.575
Poor electricity supply	0.981	0.309	10.07	1	0.001	2.667
Lack of digital training opportunities	1.102	0.326	11.41	1	0.001	3.010
Inadequate ICT infrastructure	1.426	0.351	16.52	1	0.000	4.162
Constant	-2.201	0.591	13.87	1	0.000	0.111

Logistic regression confirms significant barriers to ICT use for job creation in Maiduguri, including high internet/data costs, poor electricity, lack of training, and inadequate infrastructure, all with $p < 0.05$. These factors greatly increase the likelihood of perceiving ICT as inaccessible. The null hypothesis was rejected, affirming the presence of structural and systemic challenges that must be addressed through targeted policies and programs.

4. Hypothesis Three

H₀₃: The existing ICT-driven initiatives have a positive impact on employment and entrepreneurship in Maiduguri.

Table 8: Pearson Correlation Analysis Testing Hypothesis Three

Statistic	Value
Sample Size (n)	380
Correlation Coefficient (r)	0.52
Degrees of Freedom (df)	378

Critical Value ($\alpha = 0.05$)	0.10
t-Value	11.36
p-Value	0.000
Decision	Reject H_0
Significance	$p < 0.05$

Pearson correlation analysis ($r = 0.52$, $p = 0.000$) shows a significant positive relationship between ICT initiatives and employment/entrepreneurship in Maiduguri. The null hypothesis was rejected, confirming that programs like digital skills training, online work platforms, and tech incubators are effectively reducing unemployment and boosting entrepreneurship.

D. *Key Findings*

Based on the analysis of data, the following findings emerged:

- The result of the chi-square test conducted for Hypothesis One revealed a statistically significant relationship, indicating that respondents perceive the level of ICT infrastructure and digital literacy in Maiduguri as low. This suggests that most respondents believe that the current state of digital access and skill acquisition is inadequate, which could hinder the full potential of ICT in job creation.
- The logistic regression analysis for Hypothesis Two showed that significant barriers such as the high cost of internet access, poor electricity supply, lack of digital training opportunities, and inadequate ICT infrastructure considerably hinder the use of ICT for job creation in Maiduguri. Each of these barriers had a statistically significant influence on respondents' perceptions, confirming the existence of critical constraints that need urgent attention.
- The Pearson correlation result for Hypothesis Three revealed a moderate to strong positive relationship between existing ICT-driven initiatives and improvements in employment and entrepreneurship in Maiduguri. This indicates that interventions such as tech training programs, online platforms, and digital entrepreneurship initiatives are effectively contributing to job creation and self-employment opportunities in the region.

V. **DISCUSSION OF FINDINGS**

A. *Current state of ICT infrastructure and digital literacy in Borno State*

The analysis of Research Question One examined the extent to which information and communication technology (ICT) contributes to job creation among youths in Maiduguri. The data revealed that all the items presented on this theme scored mean values above the cutoff of 2.50, indicating general agreement among respondents that ICT indeed plays a critical role in creating employment opportunities. Specific responses highlighted that ICT enables access to job opportunities, promotes youth innovation, and supports digital entrepreneurship. This finding aligns with the results from the chi-square hypothesis test, which showed a statistically significant association between ICT and job creation ($\chi^2 = 11.227$, $p = 0.001$). These findings corroborate the study by Soyele (2025), who found that

ICT tools equip youths in tertiary institutions with technical and entrepreneurial skills, such as website development and digital marketing, which increase their employability and income. Similarly, Andrew et al. (2023) confirmed that digital platforms enable youths to engage in income-generating activities like content creation, app development, and digital marketing, fostering self-employment and economic independence. Mwesha et al. (2025) further emphasized that digital skills development fosters youth entrepreneurship and access to new markets, thus reducing unemployment. These supporting studies affirm that the integration of ICT into youth development strategies is crucial for economic empowerment, particularly in regions like Maiduguri that face economic and social vulnerabilities. The overall evidence from both empirical and current data confirms that ICT significantly contributes to employment creation and serves as a transformative tool for reducing youth unemployment in Nigeria.

B. Major barriers hindering the use of ICT for job creation in Maiduguri

The second research question explored the influence of ICT skills on youth entrepreneurship development. The analysis demonstrated strong agreement from respondents, as all items presented received mean values above the 2.50 cutoff point. The logistic regression analysis further confirmed that ICT skills significantly predict entrepreneurship development, with a p-value of 0.000, indicating statistical significance at the 0.05 level. The interpretation of this result indicates that the acquisition of ICT competencies, such as social media marketing, e-commerce operations, and digital branding, positively influences young people's ability to establish and grow businesses. These findings are consistent with those of Romanus (2023), who showed that ICT adoption significantly enhances youth employment, particularly in the agricultural sector, by increasing productivity and facilitating access to markets. Additionally, the study by Adesina et al. (2022) emphasizes that ICT empowers youth to create career prospects through telecommunication and digital services, fostering both individual growth and national development. The research by Oghenekome and Valentine (2025) also confirms that digital skills such as email and search engine marketing are necessary for youth empowerment and entrepreneurship success. These studies support the findings of the current research by highlighting that ICT-driven entrepreneurship plays a vital role in building sustainable economic opportunities for young people, especially in underserved areas like Maiduguri. The positive outcome reinforces the call for policy and institutional frameworks to promote ICT training and infrastructure as part of youth empowerment strategies.

C. Impact of existing ICT-driven initiatives on employment and entrepreneurship in Maiduguri

Research Question Three investigated whether ICT serves as an enabler for youth innovation and business start-ups in Maiduguri. The descriptive statistics showed strong agreement from respondents, with all item mean scores exceeding the benchmark of 2.50, thus confirming that ICT promotes innovation and supports the initiation of small and medium enterprises (SMEs) by youths. The Pearson correlation analysis used to test the associated hypothesis further revealed a moderate positive relationship between ICT exposure and youth innovation ($r = 0.47$, $t = 8.78$, $p < 0.000$), thus leading to the rejection of the null hypothesis. This finding implies that as youths become more exposed to ICT tools and platforms, their innovative capacities and ability to launch start-ups increase significantly.

This aligns with the conclusions of Miftahu and John (2024), who revealed that the digital economy has a substantial impact on youth unemployment, explaining over 67% of the variance and demonstrating that digital inclusion enhances start-up formation and self-employment. Furthermore, Andrew et al. (2023) identified that digital entrepreneurship enables wealth creation, access to markets, and knowledge enhancement, all of which are hallmarks of innovation. Mwesha et al. (2025) also support this position by indicating that digital platforms not only create job opportunities but also foster creativity and entrepreneurial problem-solving among African youths. These parallel findings confirm that ICT, when adequately harnessed, acts as a powerful enabler of youth innovation and start-up development, particularly in regions like Maiduguri, where access to conventional employment is limited. Therefore, policies aimed at expanding digital literacy and access to technology among youth are essential for fostering long-term socio-economic transformation.

D. Actionable strategies to enhance ICT adoption and maximize job creation

The fourth research question sought to determine the effectiveness of ICT in reducing unemployment rates among youths in Maiduguri. The descriptive statistics indicated that respondents largely agreed that ICT has a direct impact on unemployment reduction, with all items recording mean values above the 2.50 threshold. This finding was reinforced by the results of the chi-square hypothesis test ($\chi^2 = 12.862$, $p = 0.001$), which demonstrated a statistically significant relationship between ICT utilization and unemployment reduction. This result implies that youths who leverage ICT tools are less likely to remain unemployed, as digital technologies provide access to a wider range of job opportunities and entrepreneurial ventures. The findings are in line with those of Oye, Inuwa, and Muhammad (2023), who noted that ICT has the potential to combat rising unemployment in Nigeria by creating new jobs in telecommunication and online services. Similarly, Miftahu and John (2024) confirmed that the digital economy significantly influences youth unemployment, suggesting that ICT integration into economic planning could reduce joblessness. Oghenekome and Valentine (2025) also found that both digital and business skills acquisition significantly curb youth unemployment in Delta State, emphasizing the role of educational institutions in embedding ICT training into curricula. Adesina et al. (2022) further argued that ICT empowers youth by opening career prospects through platforms like mobile applications, telecasters, and online businesses. Collectively, these studies reinforce the current study's finding that ICT is an effective intervention for addressing the high rates of youth unemployment in Maiduguri. The integration of ICT into job creation strategies must, therefore, be prioritized by government agencies, NGOs, and educational institutions to facilitate inclusive economic growth and sustainable youth development.

VI. SUMMARY, CONCLUSION AND RECOMMENDATIONS

A. Summary of the Study

The study titled "Information and Communication Technology as a Tool for Creating Job Opportunities in Borno State, Nigeria: A Case Study of Maiduguri" was designed to investigate the role of ICT in fostering job creation and youth empowerment in Maiduguri, a region that has faced prolonged socioeconomic challenges due to insecurity and limited

traditional employment opportunities. The study was underpinned by four specific objectives: to determine the extent to which ICT contributes to job creation among youths in Maiduguri; to examine how ICT skills influence youth entrepreneurship development; to assess the role of ICT as an enabler for youth innovation and start-ups; and to evaluate the effectiveness of ICT in reducing unemployment rates among youths in the region. The research was grounded in the Technology Acceptance Model (TAM) developed by Davis (1989), which provided a theoretical framework to understand how ICT tools are adopted and utilized by youths for economic purposes.

The study adopted a descriptive survey design, which was appropriate for assessing the current perceptions and experiences of the youth population regarding ICT and job creation. The population of the study comprised ICT-inclined youth in Maiduguri, with a sample size of 400 respondents determined using Taro Yamane (1967) formula. The sampling technique employed was stratified random sampling to ensure representativeness across different categories of youth actively engaged in ICT-related training, businesses, or education.

Data were collected using a structured questionnaire designed with a four-point Likert scale, which captured responses across the research objectives. The questionnaire was subjected to face and content validation by experts in educational research and ICT studies to ensure the instrument's relevance and comprehensiveness. Reliability was tested using the Cronbach Alpha technique, yielding a coefficient of 0.83, which indicated high internal consistency. The data collection process was carried out with the help of trained research assistants familiar with the local context, ensuring high response rates and accurate data recording. Data analysis was conducted using both descriptive and inferential statistical tools. Descriptive statistics, including mean and standard deviation, were used to answer the research questions, while chi-square, logistic regression and Pearson correlation were employed to test the hypotheses at a 0.05 level of significance.

B. Conclusion

Based on the findings of the study, it is evident that ICT serves as a catalyst for employment generation and entrepreneurial growth among youths in Maiduguri. The data show that youths who engage with ICT tools and platforms are more likely to secure gainful employment or establish start-ups than those who do not. ICT improves access to information, facilitates innovation, and bridges the gap between unemployment and productivity. To harness the full potential of ICT for job creation, stakeholders, including government agencies, NGOs, and educational institutions, should prioritize investments in ICT infrastructure, training programs, and digital literacy initiatives.

The study validates the assumption that ICT, when effectively integrated into economic planning, becomes an indispensable tool for youth empowerment and job creation. Ultimately, the digital transformation of the Nigerian economy, particularly in underserved regions like Maiduguri, holds significant potential for reversing unemployment trends and fostering sustainable development. By leveraging ICT, policymakers and stakeholders can create a more inclusive and prosperous future for Nigerian youths.

RECOMMENDATIONS

Based on the findings of the study, the following recommendations are proffered.

- The government should ensure full local implementation of the National Digital Economy Policy and Strategy (2020-2030) by strengthening local governance capacity and reducing bureaucratic bottlenecks. Additionally, the government should support ICT start-ups in Maiduguri with tax incentives and a simplified registration process to promote youth digital entrepreneurship.
- The government should prioritise investments in ICT infrastructure and digital literacy initiatives, especially in conflict-affected areas such as Maiduguri. This can be achieved by expanding internet access, establishing ICT hubs, and providing training centres in urban and rural locations.
- Educational institutions should integrate ICT skill development and digital entrepreneurship training into both formal and non-formal curricula. Collaborations should be established amongst educational institutions, technology firms, and NGOs to provide practical exposure to ICT applications and foster a culture of innovation and problem-solving amongst youths.
- Private sector organisations should provide mentorship programmes, seed funding, and incubation services to ICT-inclined youths to support the growth of innovative start-ups and freelance businesses.
- Youth development agencies and NGOs should prioritise ICT-based interventions in their empowerment programmes. This can be achieved by organising relevant training in areas such as digital marketing, graphic design, coding, e-commerce, and online content creation. These organisations should also establish evaluation mechanisms to assess the impact of ICT programmes on reducing youth unemployment and inform future policy implementation.

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