July, 2024

Final Report
A Comprehensive Study on the Digital Gaps due to Age, Disability, Geography, Socioeconomic status, Discrimination and Migration in Borno and Yobe States

Fatoa and Associates Nigeria Limited (FANL)

Submitted to:

ZOA
from relief to recovery

ZOA Nigeria

Acknowledgements

This research titled "Conducting a Comprehensive Study on the Digital Gaps due to Age, Disability, Geography, Socioeconomic status, Discrimination and Migration in Borno and Yobe States" was commissioned by the ZOA Nigeria.

The research was undertaken in Borno, Yobe and FCT respectively, by a team of independent experts to assess the contextual understanding of digital divide existing due to Age, Disability, Geography, Socioeconomic Status, Discrimination and Migration.

Sincere appreciation to the Lead Researcher who transformed the reports into this Survey Report, and the other Experts who undertook the research at such short notice.

We appreciate JDPH, LHI and MDAs for their partnership and support throughout the course of this project.

Final gratitude to the Fatoa and Associates Nigeria Limited (FANL) Team, for supporting the process.

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Abbreviations and Acronyms

AD	After Death
ATM	Automated Teller Machine
BAY	Borno, Adamawa and Yobe
BICTDA	Borno State Information and Communication Technology Development Agency
CBOs	Community Based Organizations
CITAD	Centre for Information Technology and Development
CSOs	Civil Society Organizations
CPPP	Community, Private and Public Partnerships
FGDs	Focus Group Discussions
FANL	Fatoa and Associates Nigeria Limited
HDPN	Humanitarian-Development and Peace Nexus
IDI	In-Depth Interviews
IDPs	Internally Displaced Persons
IEC	Information, Education and Communication
ITU	International Telecommunication Union
KPI	Key Performance Indicators
KIIs	Key Informant Interview
LGAs	Local Government Areas
MDAs	Ministries, Departments and Agencies
M&E	Monitoring and Evaluation
MNO	Mobile Network Operators
NBS	National Bureau of Statistics
NCC	Nigerian Communications Commission
NGOs	Non-Governmental Organizations
NDEPS	National Digital Economy Policy and Strategy
NITDA	National Information Technology Development Agency
O&M	Operation and Maintenance
PAC	Project Advisory Committee
PDA	Positive Deviance Approach
POS	Point on Sale
PWDs	Persons with Disabilities
SSI	Semi Structured Interview
SWOT	Strengths, Weaknesses, Opportunities and Threats
TL	Team Leader
ToR	Terms of Reference
WEF	World Economic Forum
YITDA	Yobe State Information Technology Development Agency

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Definition of Terms

For the purpose of this report the following terms are defined as follows;
"Fatoa and Associates Nigeria Limited" will, in the text, be represented as **FATOA.**

Anonymous: Made or done by someone whose name is not known or not made public.

Community, Private, and Public Partnerships (CPPPs): Collaborative arrangements where communities, private sector companies, and public (government) institutions work together to achieve common goals, such as expanding digital infrastructure or improving digital literacy. These partnerships are essential in bridging the digital divide in hard-to-reach areas.

Civil Society Organizations (CSOs): Non-governmental and nonprofit organizations that work to promote social justice, human rights, and public participation in governance.

Digital Divide: Refers to the gap between individuals, households, communities, and geographic areas at different socio-economic levels in terms of access to, use of, or knowledge of Information and Communication Technologies (ICT).

Digital Literacy: The ability to effectively and critically navigate, evaluate, and create information using digital technologies. Digital literacy includes the skills required to use devices such as smartphones, computers, and the internet for communication, accessing information, and participating in the digital economy.

Digital Financial Services: Financial services accessed and delivered through digital channels such as mobile phones, computers, or the internet. Digital financial services include mobile banking, mobile money, and online payments, and their accessibility is a key indicator of digital inclusion in underserved communities.

Digital Inclusion: Ensures that all individuals and communities, particularly the most disadvantaged, have access to and the ability to use information and communication technologies (ICTs). Digital inclusion involves affordable access to high-speed internet, digital literacy skills, and the availability of relevant online content and services.

Gender Digital Divide: The gap between men and women in terms of their access to, use of, and benefits from digital technologies. This concept recognizes that women, particularly in regions like Northern Nigeria, face additional barriers such as cultural restrictions and limited digital literacy.

Marginalized Populations: Groups of people who are excluded from mainstream social, economic, cultural, or political life. For instance, marginalized populations include women, hard-to-reach youth, and Persons with Disabilities who face systemic barriers to accessing digital resources and platforms.

Mobile Network Operators (MNOs): Companies that provide wireless communication services, including mobile data, voice, and text messaging. In this report, MNOs play a critical role in improving digital connectivity and access for underserved regions and populations.

Policy Domestication: The process of adapting and implementing national or international policies within local or regional contexts.

EXECUTIVE SUMMARY

Introduction

The world is being drastically changed by the technological revolution, and this trend is not anticipated to slow down. In actuality, the COVID-19 epidemic, international conflicts, and insurgencies have all further accelerated the digital economy. The immediate response to these crises, the management and prevention of future outbreaks, and the recovery plans of organisations, institutions, businesses, and nations have all relied heavily on digital measures. Given the current role of digitalisation, understanding the digital gap resulting from factors such as age, disability, geography, socioeconomic status, discrimination, and migration in the digital sphere is no longer negotiable.

There is a growing role of Artificial Intelligence (AI) in driving digital transformation cannot be overemphasized. AI is playing an increasingly important role in bridging the digital transformation gap, and its potential to drive business success cannot be ignored.

The study assesses the barriers to digital inclusion in Borno and Yobe States, Nigeria, focusing on marginalized groups such as women, youth, persons with disabilities, and hard-to-reach populations. The research, conducted over eight weeks, had an overarching objective of the study is to increase awareness of the impact of a digital divide by identifying challenges related to age, disability, geography, socioeconomic status, discrimination, and migration, while exploring opportunities for Community, Private, and Public Partnerships (CPPPs) to enhance digital access and literacy. The findings provide actionable insights to bridge the digital divide and foster inclusive digital transformation in these regions.

Background

Borno and Yobe States, located in northeastern Nigeria, faces significant challenges in digital inclusion due to conflict, infrastructural deficits, and socio-cultural barriers. High illiteracy rates, limited access to digital technology, and disruptions caused by insurgency have exacerbated the digital divide, particularly affecting women, youth, and persons with disabilities. Despite efforts by state agencies like the Borno State Information and Communication Technology Development Agency (BICTDA) and the Yobe Information Technology Development Agency (YITDA), substantial gaps remain in digital literacy, infrastructure, and service accessibility. The study highlights the urgent need for targeted interventions to address these disparities and promote socio-economic growth through digital inclusion.

Methodology

The study employed a mixed-methods approach, combining quantitative and qualitative techniques. Data were collected through surveys, Focus Group Discussions (FGDs), Key Informant Interviews (KIIs), and the Positive Deviance Approach (PDA).

A total of 1,420 respondents were engaged, including 1,075 survey participants, 185 KIIs, 85 FGDs, and 75 PDA respondents. The research covered 13 Local Government Areas

(LGAs) across Borno and Yobe States, ensuring geographical and demographic diversity. Data analysis included descriptive statistics, cross-tabulation, thematic analysis, and regression analysis to identify barriers and opportunities for digital inclusion.

Key Findings

The study revealed significant digital gaps in Borno and Yobe States, with the following key findings:

i. Infrastructure Gaps:

The study revealed that 34.3% of respondents identified poor network coverage as a major barrier to digital access, particularly in rural and conflict-affected areas like Monguno and Gwoza LGAs. These regions often rely on a single mobile network operator, leading to frequent service disruptions and limited connectivity. Additionally, 20.7% of respondents cited high service costs as a significant challenge, making it difficult for low-income households to afford internet access or digital devices. These infrastructure gaps disproportionately affect marginalized communities, hindering their ability to participate in the digital economy and access essential services.

ii. Digital Literacy:

Only 12.9% of respondents reported having adequate digital skills, highlighting a critical gap in digital literacy. This lack of skills is particularly pronounced among women and older populations, who often face socio-cultural barriers to accessing training and education. Without the ability to effectively use digital tools, many individuals are unable to leverage opportunities in education, employment, and financial services, perpetuating cycles of exclusion and inequality.

iii. Access to Devices:

While 68.1% of respondents owned smartphones, only 17.8% reported owning computers or tablets. This disparity in device access underscores the reliance on smartphones as the primary digital tool, which may limit the ability to perform more complex tasks such as online learning, professional work, or accessing e-government services. The low ownership of computers and tablets is particularly concerning in educational and professional contexts, where these devices are essential for full participation in the digital economy.

iv. Gender Disparities:

The study uncovered significant gender disparities in digital access, with 57.3% of women owning smartphones compared to 74.9% of men. Socio-cultural norms, such as restrictions on women's mobility and access to education, further exacerbate this gap. Women are also less likely to receive training in digital skills, limiting their ability to use digital tools effectively. Addressing these disparities is crucial for ensuring that women can fully participate in the digital economy and benefit from its opportunities.

v. Impact on Sectors:

Digital gaps have far-reaching consequences across key sectors. In education (31.5%), limited access to digital tools and online learning platforms hinders students' ability to acquire knowledge and skills. In healthcare (27.5%), the lack of digital infrastructure and telemedicine services restricts access to critical health information and care. Similarly, in

financial services (25.0%), the underutilization of digital banking and payment systems limits economic participation and financial inclusion. These sectorial impacts highlight the urgent need for targeted interventions to bridge the digital divide.

vi. Stakeholder Perspectives:

Mobile telecommunication companies were perceived as pivotal in improving digital services, with 51.5% of respondents rating their role as "very important." Stakeholders emphasized the need for these companies to expand network coverage, reduce service costs, and provide digital literacy programs. Their involvement is seen as critical for addressing infrastructure gaps and ensuring that digital services are accessible and affordable for all, particularly in underserved and hard-to-reach areas.

The Role of AI in Digital Transformation

There are various ways in which AI is being used to drive digital transformation, such as:

- Process automation
- Data analytics
- Customer service chatbots
- Predictive maintenance

AI-Powered Solutions for Bridging the Digital Transformation Gap

The various AI-powered solutions that can help bridge the digital transformation gap, such as:

- AI-powered process mining
- AI-driven change management
- AI-based skills training

Benefits of AI in Digital Transformation

The benefits of using AI in digital transformation, such as:

- Increased efficiency
- Improved customer experience
- Enhanced decision-making
- Competitive advantage

Analysis and Recommendations

To address the digital gaps, the study recommends the following strategies:

Short-Term Strategies:

- Expand digital literacy programs targeting women, youth, and persons with disabilities.
- Provide subsidized smartphones and data plans to low-income households.
- Establish community-based ICT hubs in underserved areas.
- Develop a clear AI strategy that aligns with business objectives.

Long-Term Strategies:

- Invest in digital infrastructure, including broadband expansion and reliable electricity.

- Develop localized digital policies aligned with national frameworks like the National Digital Economy Policy and Strategy (NDEPS).
- Foster public-private partnerships to enhance service delivery and innovation.
- Invest in AI-powered solutions that can help bridge the digital transformation gap.
- Develop skills and competencies in AI and data science.
- Address ethical and societal implications of AI adoption in digital transformation.

Policy and Regulatory Frameworks:

- Strengthen policy implementation at state and local levels, ensuring inclusivity and accessibility.
- Promote gender-sensitive and disability-inclusive digital policies to address specific barriers.

Partnerships:

- Collaborate with international donors, NGOs, and private sector stakeholders to scale successful initiatives.
- Leverage existing partnerships, such as those with ZOA and the African Development Bank (AfDB) etc., to enhance digital inclusion efforts.

Conclusion

The study underscores the critical need to address digital gaps in Borno and Yobe States to promote inclusive socio-economic development. By bridging infrastructure deficits, enhancing digital literacy, and fostering partnerships, these regions can unlock the transformative potential of digital technologies.

The findings highlight the importance of targeted interventions and collaborative efforts to ensure that marginalized groups, including women, youth, and persons with disabilities, can fully participate in the digital economy. Addressing these challenges stakeholders can create a more equitable and inclusive digital ecosystem, fostering resilience and growth in Borno, Yobe, and beyond. Also, it would provide an essential basis for achieving sustainable development and reducing inequalities in Nigeria's digital landscape.

Implications

The findings have significant implications for policy, practice, and future research:

i. Policy: Policymakers should prioritize digital inclusion in national and state development plans, ensuring that marginalized groups are not left behind.
ii. Practice: Implementing agencies must adopt localized strategies to address specific barriers, such as cultural norms and infrastructural deficits.
iii. Future Research: Further studies are needed to explore the long-term impact of digital interventions and identify innovative solutions for hard-to-reach areas.
iv. Investigate the impact of AI on digital transformation outcomes.
v. Explore the role of AI in driving cultural change and organizational readiness for digital transformation.
vi. Develop frameworks and models for evaluating the effectiveness of AI-powered solutions in digital transformation.

BACKGROUND:

Rapid technological evolution defines the first two decades of the millennium. This phenomenon has increased the digital gap, disparities, and inequalities in global and local contexts[1]. Digital technology presents transformative prospects and advancements to encourage equitable development, broaden educational horizons, enhance healthcare services, and cultivate government. However, there is a chance that using digital technology would exacerbate already-existing disparities in access to and benefits from its use[2]. This study aims to investigate the growing gap between those who have complete access to technology and those who do not. It is recognized that long-term changes require equitable access to Information and Communication Technologies (ICTs), as well as the resources and skills necessary to fully utilise their benefits. Its causes, effects, and ubiquity in terms of time, place, context, and linkage with other divisions and inequalities, such age, disability, geography, socioeconomic status, discrimination and migration amongst others.

The digital gap is shaped in large part by age. It's common for younger generations especially those brought up in the digital age to be innately comfortable with technology, but older folks could find it difficult to use new digital tools and platforms. With the increasing integration of technology into daily life, there is a growing divide between generations. If deliberate measures are not taken to teach older populations in digital literacy and increase their access to technology, they run the risk of being shut out of vital services that could improve their quality of life, such online learning, e-governance, and telemedicine.

Another obstacle in the digital world is disability. Many digital platforms and gadgets are not made with accessibility for those with physical, sensory, or cognitive limitations in mind. Despite the development of innovations like voice commands, screen readers, and adaptive devices, these technologies are still not widely available or affordable. Many people with disabilities are unable to fully participate in the digital world due to the lack of inclusive design, which further isolates them from essential services, communication, and information.

Geographical factors aggravate digital inequality, especially in isolated and rural places where infrastructural development is behind. Entire communities are shut out of the digital economy in places with spotty or nonexistent internet connectivity. In developing nations, where rural residents frequently lack both internet connectivity and the fundamental digital infrastructure needed to support commerce, healthcare, and education, this spatial divide is particularly pronounced. Expanding digital infrastructure and making ensuring that technical improvements reach even the most remote regions are necessary steps towards bridging this divide.

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[1] *Longoria, I. A. I., Bustamante-Bello, R., Ramírez-Montoya, M. S., & Molina, A. (2022). Systematic mapping of digital gap and gender, age, ethnicity, or disability. Sustainability, 14(3), 1297.*

[2] *https://www.usaid.gov/sites/default/files/2022-05/USAID_Digital_Strategy.pdf.pdf*

Perhaps the most ubiquitous aspect driving digital inequality is socioeconomic status. For low-income communities, the expense of technology—whether it be for gadgets, internet connection, or digital services—creates a barrier. Less wealthy people are less likely to own laptops, smartphones, or dependable internet connectivity, which prevents them from taking advantage of digital banking, healthcare, or educational opportunities. The digital divide will keep growing if the cost of digital technology is not addressed, excluding marginalised populations from the chances and advantages that the digital revolution offers.

Migration, particularly in regions like Borno and Yobe States, plays a significant role in shaping the digital landscape and access to technology. As people are displaced due to conflict, instability, or environmental factors, many find themselves moving from rural or remote areas with limited digital infrastructure into urban centers or other regions with better connectivity. However, these migrants, often from socioeconomically disadvantaged backgrounds, face barriers in accessing digital services upon arrival. In Borno and Yobe, where rural areas already suffer from insufficient digital infrastructure, the lack of access to technology and the internet further marginalizes displaced populations. Many migrants lack the digital literacy required to navigate e-governance, access health information online, or take advantage of digital financial services, leaving them cut off from essential services that could ease their resettlement.

For those who migrate to relatively more connected urban areas like Maiduguri or Damaturu LGAs, the challenges remain. Limited knowledge of how to use smartphones or computers, compounded by socioeconomic constraints, means that even with access to infrastructure, they are unable to fully benefit from the digital economy.

Nigeria as a developing country is not left out with respect to this menace. "Transform Nigeria into a leading digital economy, providing quality life and digital economies for all," is the stated goal of the National Digital Economy Policy and Strategy. With over 140 million internet users or approximately 36 percent of the population, digital technologies are becoming more and more common and indispensable in Nigerian daily life[3]. That being said, there are notable differences in terms of digital technology use and access. Major metropolitan areas' inhabitants, men, and those with better incomes and educational attainment all benefit from digital access[4]. In areas where inequality is pervasive, the gender gap in technology access and use is particularly noticeable. The digital gap in Nigeria is influenced by a number of factors, including gender identity, age, the disparity between urban and rural areas, education, and disability[5]. The COVID-19 pandemic did, however, also highlight the value of having access to the internet, since

[3] *National Bureau of Statistics: https://nigerianstat.gov.ng/elibrary/read/1241133*
[4] *https://researchictafrica.net/wp/wp-content/uploads/2018/12/After-Access-Nigeria-State-of-ICT-2017.pdf*
[5] *Gender Disparity in Internet Access and Usage in Nigeria (http://www.ijlgc.com/PDF/IJLGC-2018-12-12-05.pdf)*

many businesses relied on online platforms for survival and some private schools switched to online instruction. It is imperative to redouble efforts to narrow the digital divides as the nation invests in its IT ecosystem, with an emphasis on differences based on age, disability, geography, socioeconomic status, discrimination, and migration.

The digital divide is particularly acute in the Northeast of Nigeria, including Borno and Yobe States. According to the National Information Technology Development Agency (NITDA), these regions exhibit some of the highest gaps in digital literacy compared to other parts of Nigeria. Yobe State, for example, has a literacy rate of only 7.23%[6]. Additionally, as of December 2018, the Southwest region had the highest number of Internet users, accounting for 76% of total subscriptions, whereas the Northeast and Northwest regions combined for just 0.62%. This stark regional disparity underscores the urgent need for targeted digital inclusion efforts.

The lack of access to digital resources significantly impacts various marginalized groups in Borno and Yobe States, including CSOs, grassroots organizations, women, hard-to-reach youth, persons with disabilities, and other vulnerable populations. Without adequate digital access, these groups are unable to fully engage in information sharing, learning opportunities, digital marketing, and communication. This lack of digital inclusion effectively marginalizes their voices in decision-making processes, leaving them excluded from influencing policies and systems that affect their lives.

To address these challenges, Borno and Yobe States have recently established the Borno State Information and Communication Technology Development Agency (BICTDA) and the Yobe State Information Technology Development Agency (YITDA). These agencies have clear policy objectives and structural frameworks aimed at enhancing digital capabilities. However, as highlighted by the World Bank digital economy for Africa initiative in 2021[7] and the International Telecommunication Union in 2022[8], Nigeria requires a substantial technical capacity development to effectively bridge the digital divide and promote digital inclusion across the regions. Hence, there is a need to further explore and understand the causes, limitations and factors that contribute to this menace. Furthermore, a need to proffer or suggest techniques to mitigate this menace called "Digital Divide".

[6] *National Bureau of Statistics, 2023 (https://www.nigerianstat.gov.ng/)*
[7] *World Bank's Digital Economy for Africa initiative (2020)*
[8] *https://www.itu.int/itu-d/reports/statistics/facts-figures-2021/*
[9] *World Bank. (2021).* Digital Economy for Africa Initiative. *World Bank Group.*

INTRODUCTION:

The workplace is being drastically changed by the technology revolution, and this trend is not predicted to reverse. In actuality, the COVID-19 epidemic has greatly expedited the growth of the digital economy. In order to prevent future outbreaks, mitigate the current crisis, and support institutions' and businesses' recovery plans, digital measures have been crucial. Given the importance that digitalisation will play in the future of work, it is now non-negotiable to include those who are impacted by the digital divide because of their age, disability, location, socioeconomic position, prejudice, or migration. Hence, based on this concern this assessment is designed to deliver a comprehensive and inclusive analysis of the barriers faced by the populace of Borno and Yobe States based on: age, disabilities, geography, socioeconomic status, discrimination and migration. Acknowledging the intricate nature of digital inclusion, the study has meticulously accounted for a wide array of variables to ensure a thorough understanding of the factors influencing digital access and usage.

The approach implemented is both holistic and significant, incorporating all underlisted elements contributing to digital divide in Borno and Yobe states of Nigeria. Employing and examining these variables in tandem, this research seeks to uncover deeper insights into digital divide and the unique challenges encountered by different affected populace. This extensive consideration allows the research to capture every complex interaction between various factors affecting digital access.

The assessment engaged a diverse range of respondents, including local community members, Civil Society Organizations (CSOs), Government departments, Mobile Network Operators (MNOs), and industry stakeholders. The broad spectrum of various perspectives is crucial to ensure that the study is inclusive and accurately reflects the diverse experiences and needs within the targeted regions.

Integrating these multiple dimensions and ensuring extensive stakeholder engagement, the assessment seeks to provide a well-rounded and actionable understanding of barriers to digital inclusion in Borno and Yobe States of Nigeria.

The key findings from the data collected in this research will be discussed based on the main objectives stipulated for the research.

Objective of the Study:

This study is designed to engage a range of stakeholders including local communities, Civil Society Organizations (CSOs), government departments, Mobile Network Operators (MNOs), and industry experts to identify and address barriers that **Age, Disability, Geography, Socioeconomic status, Discrimination and Migration** face in accessing digital platforms.

The objectives of this research are detailed as follows:

1. **Explore Limitations and Opportunities**

This objective involves a comprehensive investigation into the challenges and opportunities within hard-to-reach areas. The study will:

- **Identify Barriers:** Document the specific obstacles that women, youth, and persons with disabilities encounter in accessing digital services. This may include infrastructural issues, affordability, digital literacy, and socio-cultural constraints.
- **Assess Needs and Opportunities:** Examine the critical needs of these groups and the potential for Community, Private, and Public Partnerships (CPPPs) to address these needs. Evaluate how mobile telecommunication companies can contribute to bridging the digital divide by providing better connectivity, affordable services, and digital literacy programs.
- **Evaluate Partnerships:** Analyze existing and potential partnerships that could strengthen digital transformation efforts. This includes evaluating the effectiveness of current collaborations and identifying areas where new partnerships could be formed.

2. **Analyze Digital Product Utilization**

This objective focuses on understanding the utilization of digital products at the community level, especially in the context of increasing smartphone ownership and digital financial services. The study will:

- **Examine Gaps in Utilization:** Identify discrepancies between the high rates of smartphone ownership and the actual use of digital products and services. Determine whether access to and use of digital financial services align with ownership trends.
- **Assess Barriers to Utilization:** Investigate reasons for underutilization of digital products despite the availability of smartphones. This may involve looking at issues related to digital literacy, service affordability, and access to relevant digital content and services.

3. **Understand the Digital Gender Gap**

This objective aims to quantify and comprehend the digital gender gap within the targeted states. The study will:

- **Measure Disparities:** Analyze the extent of digital inequality between men and women, focusing on access, usage, and proficiency with digital technologies.
- **Explore Contributing Factors:** Investigate the socio-economic, cultural, and educational factors that contribute to the digital gender gap. Understand how these factors affect women's ability to access and use digital platforms effectively.

4. **Assess Policy Domestication**

This objective involves evaluating the implementation of digital policies at various levels. The study will:

- **Evaluate Policy Implementation:** Assess how well digital policies and strategies are being adopted and executed at the State and Local Government Area (LGA)

levels. This includes examining policy adherence and the effectiveness of local action plans.

- **Investigate Localized Action Plans:** Investigate the presence of localized action plans designed to address digital inclusion and their implementation status. Evaluate whether these plans are tailored to the specific needs of the local population and whether they are being effectively executed.

5. **Publish and Disseminate Findings**

This objective focuses on sharing the results of the study with a broad audience. The study will:

- **Publish Findings:** Prepare comprehensive reports detailing the study's findings, including data, analysis, and recommendations.
- **Disseminate Results:** Share the findings with stakeholders across the ecosystem, including government bodies, CSOs, MNOs, and community groups. Utilize various channels such as workshops, seminars, and digital platforms to ensure wide distribution and engagement.

6. **Formulate Policy Recommendations**

The final objective is to develop actionable recommendations based on the study's findings. The study will:

- **Develop Policy Priorities:** Formulate recommendations for policy adjustments and new priorities to address the identified digital gaps and barriers.
- **Advocate for Changes:** Provide advocacy demands to policymakers, focusing on bridging gaps and overcoming barriers that prevent women, hard-to-reach youth, and persons with disabilities from accessing digital platforms. Ensure that these recommendations are practical, actionable, and supported by the data collected during the study.

Study Area:

The study focuses on Borno and Yobe States in Northeastern Nigeria, which are recognized for their significant challenges in terms of digital inclusion. These regions face acute disparities in digital literacy, access to digital technology, and the ability to leverage digital tools for socio-economic growth. Factors such as high illiteracy rates, infrastructural deficits, and socio-cultural barriers contribute to the digital divide, particularly affecting marginalized groups like women, hard-to-reach youth, persons with disabilities, and other vulnerable populations. The national digital policy environment was also assessed in Abuja-FCT.

Borno and Yobe States, among the least digitally developed regions in Nigeria, have experienced severe disruptions due to conflict, resulting in limited access to technology and educational resources. The establishment of the Borno State Information and Communication Technology Development Agency (BICTDA) and Yobe State Information Technology Development Agency (YITDA) reflects efforts to enhance digital capabilities, yet these regions still require substantial capacity-building efforts to bridge the digital divide.

The study assesses the barriers to digital inclusion across urban and rural areas, particularly targeting marginalized populations, while exploring opportunities for Community, Private, and Public Partnerships (CPPPs) to improve access to digital services, enhance connectivity, and promote digital literacy.

The findings will inform policies and strategies aimed at overcoming the socio-economic, gender, and infrastructural challenges that hinder digital transformation in these regions.

Limitations to the Research

Challenges faced in the course of conducting the surveys

The challenges faced during the surveys included stakeholder reluctance to provide information, poor access to data collection sites, and limited availability of some respondents due to conflicting schedules. ZOA played a significant role in addressing stakeholder reluctance by leveraging their established relationships and trust within the communities, which helped facilitate smoother communication and encouraged participation. These issues were further mitigated through strategies such as optimizing travel plans to enhance site accessibility and rescheduling interviews to accommodate respondents' availability., additional anonymous surveys and follow-up interviews were conducted, which provided sufficient qualitative data without compromising the participants' comfort and safety.

Strategy and responses aimed at surmounting the identified challenges: The research team discontinued such interview.

Cultural Sensitivity

At the heart of our research journey, cultural sensitivity took center stage. We navigated the intricate web of local customs and norms with great care, crafting an environment where respondents felt safe and at ease. This attention to cultural nuance was crucial in fostering a space where open and honest conversations could flourish.

Ensuring the confidentiality and anonymity of our participants was paramount. By safeguarding their identities, we built a foundation of trust, encouraging them to share their thoughts and experiences candidly. Throughout the data collection process, we remained vigilant, conducting continuous monitoring and quality control checks. These measures allowed us to swiftly identify and address any issues that emerged, ensuring the integrity of our findings.

Yet, despite our best efforts, we must acknowledge the persistent limitations inherent in any research endeavor. These constraints are a reminder that our findings should be interpreted with a mindful understanding of their context. As we present our conclusions, we do so with the recognition that these limitations may influence the overall narrative of our report.

METHODOLOGY

1. **Research Method**: *Description of the research methods used (Surveys, FGDs, KIIs)*

FATOA deployed a combination of frameworks, participatory methodologies and community-driven approach, including field engagements and technology-based data collection using quantitative and qualitative techniques to gather evidence on the visible and invisible results to assess digital disparities in Borno and Yobe States. The team integrated existing data and conduct targeted surveys, considering age, disability, geography, and socioeconomic factors.

The qualitative component of the assessment was conducted among the relevant MDAs, private sectors, NGOs, educational institutions and communities to ensure diverse perspectives.

The quantitative data were collected Survey Questionnaire administered to the general public especially PWDs to determine specific responses in line with the research goals.

This inclusive methodology aimed to guide the formulation of effective policies, leveraging partnerships for digital transformation and fostering accessibility for women, hard-to-reach youth, and persons with disabilities in the specified regions while concentrating on people-centered design, implementation, monitoring and learning ensuring participation at every level of the work with sensitivity to gender, community voice and inclusion of all stakeholders.

2. **Sample Size and Demographics**: *Information on the participants*.

In ensuring a wide representativeness and heterogeneity (geographical, climatic, behavioral, cultural, economic, institutional, and insecurity, 13 LGAs were selected (Askira Uba, Biu, Mafa, Gwoza, Maiduguri, Mobar and Monguno in Borno State while Bade, Fika, Damaturu, Gujba and Jakusko in Yobe State and AMAC in FCT) for the research.

To ensure wide representativeness and heterogeneity across various dimensions such as geographical, climatic, behavioral, cultural, economic, institutional, and insecurity factors, 13 Local Government Areas (LGAs) were selected for the research. These LGAs included Askira Uba, Biu, Mafa, Gwoza, Maiduguri, Mobar, and Monguno in Borno State; Bade, Fika, Damaturu, Gujba, and Jakusko in Yobe State; and AMAC in the FCT.

In Borno State, the selection also considered senatorial districts as follows:

Central District: Bama, Dikwa, Jere, Kala Balge, Konduga, Mafa, Maiduguri, and Ngala LGAs.
Southern District: Askira Uba, Biu, and Gwoza LGAs,
Northern District: Mobbar, and Monguno LGAs,

In Yobe State, the selection similarly considered senatorial districts:

Yobe North Senatorial District: Bade, and Jakusko LGAs.
Yobe East Senatorial District: Bursari, Damaturu, and Gujba LGAs,
Yobe South Senatorial District: Fika LGA.

In addition to senatorial representation, specific local contexts were taken into account. For instance, Monguno in Borno State was selected not only for the senatorial districts but also due to the roles as host community for displaced populations from neighboring LGAs affected by insurgency. Monguno, in particular, has become a hub for displaced persons from surrounding areas, shaping its socio-economic and cultural environment. A critical point for understanding urban dynamics alongside the challenges of hosting displaced persons.

This multi-layered approach ensured that the research captured a diverse range of experiences and perspectives across the selected LGAs, providing a comprehensive basis for the study's findings and recommendations.

3. **Duration of Research:**

The research was conducted for eight (8) weeks.

4. **Number of respondents for KIIs, FGDs, PDA and Surveys**

A total of (185) respondents were reached for KIIs, (85) for FGDs, (75) Positive Deviance Approach (PDA) and 1075 respondents for the Survey questionnaire.

Gender Distribution: The majority of respondents are male, making up 83.2%, while females account for 16.8%

Age Distribution:

- The largest group of respondents is within the **18-25 years** age range, making up **36.4%** of the total population.
- **40.4%** of respondents fall in the **25-44 years** age group, representing the most active working-age population.
- The smallest group is those aged **45+ years**, making up **23.2%**, which may point to fewer older individuals engaging with digital technologies.

5. **Data Analysis**: Methods used to analyze the collected data.

The study employs a combination of qualitative and quantitative data analysis methods to gain a comprehensive understanding of the digital divide in Borno and Yobe States.

These methods are designed to address the diverse objectives of the study and ensure that all aspects of digital access, usage, and barriers are thoroughly examined.

The key methods used include:

1. **Descriptive Statistics**
    - Purpose: Descriptive statistics summarize the demographic information and general trends related to digital access and usage. They provide a clear overview of key variables such as age, gender, disability status, education level, and geographic location.
    - Tools: Measures like frequencies, percentages, means, and standard deviations are applied to demographic data from the surveys and other quantitative inputs to present overall trends.

- Outputs: For example, the study might present percentages of male and female respondents with smartphone ownership, levels of digital literacy across different age groups, or regional differences in internet access.

2. **Cross-Tabulation Analysis**
   - Purpose: Cross-tabulation helps explore the relationship between different demographic factors and digital access/utilization. This analysis is particularly useful for understanding how digital access correlates with variables like gender, education, disability status, and geographic location.
   - Tools: This involves creating tables to compare multiple variables simultaneously, such as smartphone ownership among men and women or differences in digital financial services usage between urban and rural respondents.
   - Outputs: These comparisons help identify patterns, such as the digital gender gap, by revealing how access and utilization differ between men and women or other groups.
3. **Thematic Analysis (Qualitative Data)**
   - Purpose: Thematic analysis is used to analyze qualitative data from Key Informant Interviews (KIIs), Focus Group Discussions (FGDs), and the Positive Deviance Approach (PDA). This method identifies recurring themes, patterns, and key insights related to digital access barriers, opportunities, and stakeholder perceptions.
   - Process: Responses from interviews and FGDs are transcribed and coded based on emerging themes such as socio-cultural barriers, digital literacy gaps, infrastructural issues, and partnership opportunities.
   - Outputs: Themes such as "socio-cultural constraints on women's digital access" or "the role of mobile telecommunication companies in rural connectivity" provide in-depth insights for targeted policy recommendations.
4. **Gap Analysis**
   - Purpose: Gap analysis is employed to assess discrepancies between digital access and actual utilization of digital products and services. This method identifies areas where resources are available but not fully utilized, such as smartphone ownership not translating into active use of digital financial services.
   - Tools: The method compares survey data on ownership of digital devices with data on actual usage of digital platforms to detect underutilization.
   - Outputs: The analysis may reveal, for instance, that high smartphone ownership in certain communities does not correlate with the use of mobile banking services, indicating gaps in digital literacy or service relevance.
5. **Regression Analysis**
   - Purpose: Regression analysis helps identify factors that significantly influence digital access and utilization. It quantifies the relationship between

dependent variables (e.g., digital device ownership, internet access) and independent variables (e.g., income, education, geographic location, age).

- Tools: Linear and logistic regression models are applied to the survey data to predict outcomes, such as the likelihood of digital platform usage based on demographic factors.
- Outputs: For example, the analysis might show that higher educational attainment significantly increases the probability of smartphone ownership or that rural location reduces the likelihood of internet access.

6. **Stakeholder Mapping and Network Analysis**
    - Purpose: This method is used to evaluate the role of various stakeholders (such as government agencies, mobile network operators, CSOs) in digital inclusion efforts. It maps the interactions, collaborations, and gaps between these stakeholders.
    - Process: Stakeholder data from KIIs and policy documents are used to assess the existing partnerships and identify potential areas for collaboration.
    - Outputs: The analysis may highlight where partnerships between community groups and telecom companies have been successful, or where more collaboration is needed to achieve digital inclusion goals.
7. **Strengths, Weaknesses, Opportunities, Threats (SWOT) Analysis**
    - Purpose: SWOT analysis helps evaluate the current state of digital inclusion in Borno and Yobe states by examining the strengths, weaknesses, opportunities, and threats of existing digital strategies and infrastructure.
    - Process: Data from policy documents, stakeholder interviews, and regional reports are analyzed to assess the internal and external factors affecting digital inclusion.
    - Outputs: This might reveal strengths such as government commitment to digital inclusion, weaknesses like low digital literacy rates, opportunities for public-private partnerships, and threats from socio-cultural resistance or security challenges.
8. **Comparative Analysis**
    - Purpose: This method is used to compare digital access and inclusion between different geographic regions (urban vs. rural), demographic groups (men vs. women, youth vs. older populations), and types of disabilities.
    - Tools: Comparative charts and tables help highlight disparities in access and use between various groups and regions.
    - Outputs: The analysis may show, for instance, that urban respondents have significantly better access to digital resources compared to rural respondents, or that youth are more likely to adopt new digital tools than older individuals.
9. **Triangulation of Data**
    - Purpose: Triangulation ensures the validity of the findings by cross-referencing data from multiple sources (KIIs, FGDs, surveys, and secondary

reports). It enhances the reliability and depth of insights by combining both qualitative and quantitative data.

- Process: Themes and trends identified in interviews are compared with survey results and policy documents to ensure consistency and to draw comprehensive conclusions.
- Outputs: This method strengthens the credibility of conclusions about digital access barriers and opportunities by confirming that different data sources converge on similar findings.

The use of these methods allows for a comprehensive and multi-dimensional analysis of the data collected in the study. The combination of qualitative and quantitative approaches ensures a well-rounded understanding of the barriers to digital inclusion in Borno and Yobe states, as well as the opportunities for overcoming these barriers.

The findings derived from these methods will inform actionable recommendations aimed at bridging the digital divide in the region.

FINDINGS AND ANALYSIS:

Objective 1: Exploring Limitations, Critical Needs, and Opportunities for CPPPs (Community, Private, and Public Partnerships)

In order to improve digital service accessibility and create more digital inclusion, it is critical to overcome the fundamental barriers to these services. Recent studies and findings have found numerous substantial impediments that users experience while accessing digital services, indicating issues across infrastructure, finance, and socioeconomic dimensions.

We examined these aims along the following dimensions: How do community members see the functions of mobile telecommunications companies? What are the obstacles preventing them from realizing the full potential of the digital world, and where will they need to grow in order to achieve it? We also consider whether potential exist for cooperation within Community, Private, and Public Partnerships (CPPPs) to improve digital service delivery.

1. *How do you perceive the role of mobile telecommunication companies in improving digital services in your area?*

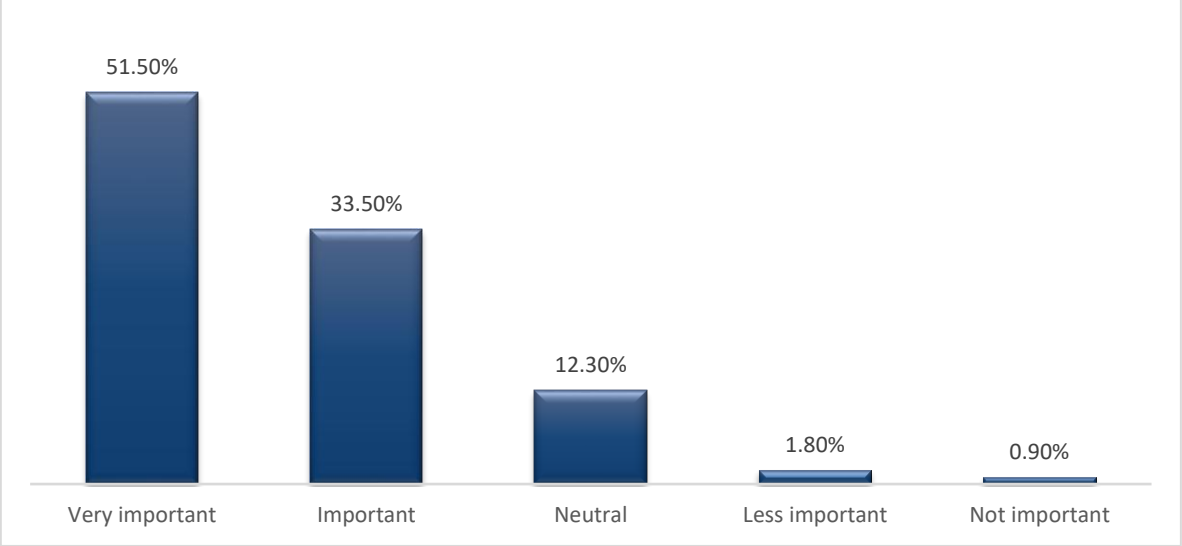

Figure 1: Perception on the role of Mobile Telecommunication Companies (MTC).

Table 1 Perception on the role of Mobile Telecommunication Companies (MTC).

Perception	Percent
Very important	51.50%
Important	33.50%
Neutral	12.30%
Less important	1.80%
Not important	0.90%
Total	**100**

The survey data reflects a strong consensus on the role of mobile telecommunication companies in enhancing digital services in Borno and Yobe State:

The findings reveal that mobile telecommunication companies are widely regarded as pivotal in enhancing digital services, particularly in regions like Borno and Yobe where digital infrastructure is critical. Over half of the respondents (51.50%) perceive these companies as "Very Important," indicating a strong consensus on their essential role in overcoming digital access barriers. This high level of importance likely reflects the critical need for expanded network coverage and more affordable services in these areas, as emphasized by studies such as the GSMA Mobile Connectivity Index (2020) and the World Bank's reports on digital infrastructure in Africa.[9]

Another 33.50% of respondents see these companies as "Important," suggesting a broad acknowledgment of their contributions, even if they do not view them as absolutely essential. This could indicate varying levels of reliance on mobile services, possibly influenced by factors such as personal experiences or the availability of alternative digital solutions. The importance of mobile companies in these regions aligns with research indicating their role in promoting digital inclusion through infrastructure development and cost reduction[10].

A smaller but still significant portion (12.30%) of respondents are "Neutral," which may reflect uncertainty or indifference, possibly due to a lack of exposure to digital services or mixed experiences with mobile networks. This aligns with findings from the International Telecommunication Union in 2021, which suggest that digital literacy and awareness are key factors influencing perceptions of digital service providers[11].

The minority who views mobile telecommunication companies as "Less Important" (1.80%) or "Not Important" (0.90%) may be expressing dissatisfaction with current services or believe that other factors, such as government policies or alternative technologies, play a more significant role. This perspective, though less common, highlights the complexity of digital inclusion efforts and the need for a multifaceted approach that includes but is not limited to the involvement of mobile companies.
Overall, these findings underscore the significant, though varied, perceptions of mobile telecommunication companies' roles in bridging the digital divide in Borno and Yobe State. Their importance, as perceived by the majority of respondents, suggests that strategic efforts to improve network infrastructure and reduce service costs through these companies could be a key component in advancing digital inclusion in these regions.

2. *What are the main limitations you face in accessing digital services in your area?*

The data collected reveals several critical limitations impacting access to digital services in Borno and Yobe States, with the most significant challenges identified as poor network

[9] *World Bank's Digital Economy for Africa initiative (2020)*
[10] *World Economic Forum, 2021 Annual Report*
[11] *https://www.itu.int/itu-d/reports/statistics/facts-figures-2021/*

coverage (34.3%), high cost of services (20.7%), and lack of digital literacy (12.9%). Additionally, 15% of respondents highlighted difficulties in accessing digital service centers, 9.9% cited impairments that restrict their ability to utilize these centers, and 8.2% pointed to socio-cultural barriers, such as restrictions on girls' mobility or domestic workload, which impede their access.

Table2: Main limitations in accessing digital services

Limitation	Valid Percent (%)
Poor network coverage	34.3
High cost of services	20.7
Lack of digital literacy	12.9
Access to the digital service centre	15
Inability to use the digital service centre due to impairment	9.9
Girls not allowed or workload at home for girls	8.2

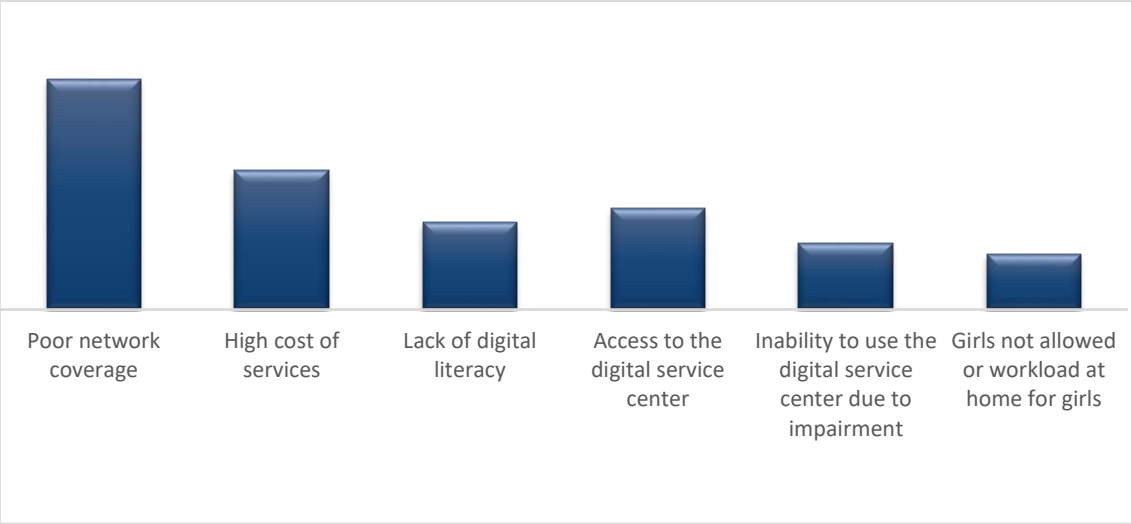

Figure 2: Main limitations in accessing digital services

Comparative Analysis

Poor Network Coverage (34.3%):

The principal impediment highlighted in the data "poor network coverage" is consistent with the findings of the World Bank's Digital Economy for Africa initiative. This effort highlights network infrastructure shortages as a major hurdle to digital inclusion in Sub-Saharan Africa, particularly in rural and conflict-affected areas like Borno and Yobe States[12]. The high percentage (34.3%) stated in your research emphasizes the crucial need for strong infrastructure development in these disadvantaged areas to overcome the digital divide.

Examining the data acquired from our findings some of the most remote and difficult-to-reach places in Borno and Yobe States reveals that a lack of network access is a significant

[12] *World Bank's Digital Economy for Africa initiative (2020)*

concern. For example, in some Local Government Areas (LGAs), only one mobile network operator, Airtel, is available:

Table 3: Poor Network Coverage

Local Government Areas (LGAs)	Available network
Mafa	Airtel
Gwoza	Airtel
Mobbar	Airtel
Monguno	Airtel

The lack of competition and inadequate network coverage greatly limits residents' capacity to access digital services. Discussions with Point of Sale (POS) operators, who provide important financial services, and internet café owners in these areas demonstrated that the limited network alternatives had a significant impact on their companies. The reliance on a single network provider causes frequent service outages, greater expenses, and lower service quality, limiting their company operations.

However, these issues cannot be fully understood without considering the broader context of the prolonged insurgency that has plagued these areas. The insurgency has not only led to widespread destruction of infrastructure but has also severely disrupted socio-economic activities. The insecurity has made it difficult to maintain and expand network infrastructure, further exacerbating the digital divide. The ongoing conflict has also displaced large populations, limiting both demand for and access to digital services in these regions.

The situation in Borno and Yobe States highlights the need for coordinated efforts to rebuild and strengthen the digital infrastructure in conflict-affected areas. Addressing network coverage gaps will require not only investment in physical infrastructure but also strategies to ensure that these investments are sustainable in the face of ongoing security challenges. Collaborations between the government, private sector, and international organizations are crucial to expanding digital access and enabling economic recovery in these regions.

High Cost of Services (20.7%):
The high cost of digital services is a significant barrier to access, aligning with global assessments that identify affordability as a crucial factor in digital connectivity. According to the ITU, low-income countries often face high costs due to limited competition and economies of scale, resulting in elevated prices for consumers[13]. Our findings indicate that this cost barrier is particularly pronounced in Nigeria, especially among vulnerable populations, underscoring the necessity for targeted policy interventions to lower these expenses.

[13] https://www.itu.int/itu-d/reports/statistics/facts-figures-2021/

Discussions with stakeholders and returnees in host communities such as Bade, Jakusuko, and Mafa LGAs in Yobe and Borno States reveal that the ongoing insurgency has severely hampered socio-economic activities. This disruption has adversely affected income levels across the board, making access to digital services increasingly difficult. The challenges extend beyond the availability of devices and infrastructure to include the high costs of subscription services for connectivity, further exacerbating the plight of displaced persons.

Income and Access to Digital Services

Table 4: Smartphone Ownership by Income Bracket

Income Bracket	% Own Smartphone	% Do Not Own Smartphone	Total %
Less than ₦10,000	16.9%	16.6%	33.6%
₦10,000 - ₦50,000	27.1%	10.1%	37.2%
₦50,001 - ₦100,000	12.1%	1.0%	13.2%
₦100,001 - ₦200,000	4.3%	0.3%	4.6%
More than ₦200,000	0.8%	0.0%	0.8%
Total	**68.1%**	**31.9%**	**100.0%**

The data shows a clear correlation between income and access to digital services, as indicated by smartphone ownership.

Lower Income Brackets: Respondents earning less than ₦10,000 and those earning ₦10,000 - ₦50,000 are the most significant contributors to the non-ownership of smartphones, at 16.6% and 10.1% respectively. This reflects a potential barrier were lower income levels limit access to digital devices.

Higher Income Brackets: Ownership increases with income. For instance, only 0.8% of respondents in the ₦200,000+ bracket do not own a smartphone, highlighting that higher income is associated with greater digital access.

This pattern suggests that income plays a critical role in determining access to digital services, with lower income levels correlating with lower rates of smartphone ownership.

Displacement and Access to Digital Services

Table 5: Mobile Phone Ownership by Displacement Status

Displacement Status	Own a Digital Services	Do Not Own a Digital Services	Total %
No	65.6%	0.0%	75.7%
Yes	19.5%	10.0%	24.1%
Total	**85.4%**	**14.6%**	**100.0%**

Table 6: Internet Access at Home by Displacement Status

Displacement Status	Have Internet Access	Do Not Have Internet Access	Total %
No	53.9%	0.0%	75.7%
Yes	14.2%	21.7%	24.1%
Total	**68.3%**	**31.7%**	**100.0%**

The findings reveal significant impacts of displacement on digital access:
Digital Services Ownership: A large majority (85.4%) of individuals who have not been displaced own Digital Services, compared to 19.5% among the displaced. The stark difference underscores how displacement severely affects access to mobile technology.

Internet Access at Home: Similarly, access to the internet at home is markedly higher for those who have not been displaced (53.9%) compared to those who have (14.2%). This indicates that displacement disrupts access to stable and reliable internet connections.

Overall, displacement exacerbates the digital divide by limiting access to essential digital resources, further compounding the challenges faced by displaced populations. These findings highlight the urgent need for targeted interventions to address the digital needs of displaced individuals and communities, ensuring that they are not left further behind in an increasingly digital world.

Lack of Digital Literacy (12.9%):
Vital literacy is crucial for harnessing the full potential of digital technologies. UNESCO's Global Framework for Digital Literacy highlights that individual without basic digital skills are unable to fully benefit from digital opportunities[14]. While the 12.9% figure indicates that digital literacy is a significant challenge, it might not be as pressing as issues related to infrastructure and costs. However, this gap emphasizes the critical need for educational programs aimed at improving digital skills, particularly in marginalized communities.

In areas such as Mafa, Gowza, Mobbar, Monguno, Fika, and Jakusko LGAs, the lack of digital literacy is even more pronounced due to additional barriers like limited access to infrastructure and training resources. During our discussions with stakeholders, they acknowledged the significant challenges faced by these communities in improving digital literacy. As one educational secretary at the digital literacy center in Mafa noted, "These challenges are always there, but this is achievable."

Moreover, we identified a positive deviant in Mafa, Ibrahim Shuaib, whose story exemplifies overcoming the odds. Ibrahim, originally employed as a security guard at the ICT Hub in Mafa, had a deep passion for technology but lacked formal training. Despite facing numerous barriers, such as limited educational background and restricted

[14] *UNESCO's Global Framework for Digital Literacy (UNESCO, 2021)*

opportunities to engage with the ICT resources, Ibrahim's determination led him to gradually learn and master several key software applications. His journey from a security guard to a proficient ICT user and mentor within his community highlights the transformative impact of digital literacy.

Today, Ibrahim not only designs graphics for his community but also teaches digital skills to others, contributing to the growth of digital literacy in Mafa. His story is a beacon of hope, demonstrating that with determination and access to educational resources, individuals in marginalized areas can overcome significant barriers and contribute to their communities.

While digital literacy challenges are apparent, particularly in hard-to-reach areas and among women, targeted educational programs and stories like Ibrahim's show that progress is achievable. These efforts are essential for fostering inclusive digital environments and enabling marginalized communities to fully engage with the digital world.

Access to Digital Service Centers (15%):
The issue of accessing digital service centers reflects the limitations of existing infrastructure. This challenge is echoed in the GSMA Mobile Connectivity Index, which indicates that geographic accessibility remains a significant issue in many developing regions (*GSMA, 2020*). In areas where digital centers are sparse, the long distances and associated costs required to reach these centers can deter usage, as reflected in your data.
Access to Digital Service Centers (15%):

The challenge of accessing digital service centers is closely tied to the limitations of existing infrastructure. The GSMA Mobile Connectivity Index (2020) highlights that geographic accessibility remains a significant barrier in many developing regions. In areas where digital service centers are sparse, the long distances and associated travel costs to reach these centers can deter people from utilizing these services, as reflected in the 15% figure in our data.

In regions like Mafa, Mobbar, Monguno, Fika, and Jakusko LGAs, access to digital service centers is particularly limited. Residents in these areas often find themselves having to travel significant distances, which not only incurs high costs but also discourages frequent use of digital services. This geographic isolation creates a digital divide, where communities are left behind due to their inability to easily reach these essential services.

For many individuals in these regions, especially those from vulnerable groups such as women and people with disabilities, the effort and expense involved in accessing digital service centers are major deterrents. This lack of proximity to digital services reduces opportunities for learning, economic advancement, and participation in the digital economy.

Addressing these challenges requires innovative solutions, such as mobile service units or community-based digital hubs that bring services closer to people's doorsteps. As emphasized by stakeholders during our discussions, expanding the reach of digital service centers is crucial. An educational secretary in Mafa LGA highlighted the potential for improvement despite the challenges, stating, "These challenges are always there, but this is achievable."

Impairments Limiting Use of Centers (9.9%):
The challenges faced by individuals with disabilities in accessing and using digital service centers are significant, with 9.9% of respondents reporting that their impairments limit their ability to utilize these facilities. This finding is in line with research from the World Health Organization[15], which underscores that people with disabilities often face multiple barriers—physical, attitudinal, and informational—that hinder their access to digital services. The relatively high percentage in our data suggests an urgent need to address these barriers through more inclusive design and accessibility features in digital service offerings. It's critical that digital service centers are equipped with the necessary accommodations to ensure they are accessible to all users, including those with disabilities.

Analysis of Cross-Tabulated Data:
The cross-tabulation of disability status with smartphone ownership reveals that 10.1% of individuals with disabilities own a smartphone, compared to 57.1% of non-disabled individuals. This indicates a significant gap in smartphone ownership, which can further limit access to digital services and online platforms for people with disabilities.

Table 7: Digital Access and Literacy by Gender

Category	Males (%)	Females (%)
Smartphone Ownership	44.50%	22.70%
Smartphone Usage	Higher	Lower
Computer Ownership	12.40%	5.40%
Computer Literacy	26.60%	13.90%
Total	**83.5**	**42**

When examining what these smartphones are used for, the data suggests that individuals with disabilities primarily use their devices for essential functions such as making calls and text messaging. However, their engagement in more complex activities like mobile banking, online payments, and social media is relatively limited. This is likely due to a combination of factors, including lack of accessible features on smartphones, limited digital literacy, and the challenges posed by impairments.

[15] https://www.unicef.org/eap/media/8311/file/What%20we%20know%20about%20the%20gender%20digital%20divide%20for%20girls:%20A%20literature%20review.pdf

Furthermore, the data on ownership of computers, laptops, or tablets shows that only 1.3% of individuals with disabilities own such devices, compared to 16.5% of non-disabled individuals. This stark contrast highlights the additional barriers that people with disabilities face in accessing digital technologies that could enhance their participation in the digital economy.

Socio-Cultural Barriers for Girls (8.2%):
The data reveal a pronounced gender disparity in digital access, particularly in smartphone ownership and usage, computer ownership, and computer literacy. This gap is significantly influenced by socio-cultural barriers that disproportionately affect girls. The 8.2% of respondents who cited socio-cultural barriers underscore this issue, as these barriers often restrict girls' access to technology, limit their movement, and increase their domestic responsibilities, thereby reducing their opportunities to engage with digital tools.

Smartphone Ownership and Usage:
Ownership: The data indicates that 44.5% of males own a smartphone, compared to only 22.7% of females. This gap reflects a trend where socio-cultural norms prioritize boys' access to technology over girls. Such norms may dictate that boys are more deserving of or in greater need of technology, leading to an unequal distribution of resources within households.

Usage: The patterns of smartphone usage also exhibit gendered differences, with males more likely to use their smartphones for a broader range of activities, including mobile banking and digital marketing. In contrast, females often have more restricted access and usage, which can be attributed to the same socio-cultural norms that limit their overall engagement with digital tools.

Computer Ownership:
The disparity in computer ownership is even more stark, with only 5.4% of females owning computers, laptops, or tablets, compared to 12.4% of males. This suggests that girls are less likely to have access to more expensive or perceived "luxury" digital tools.

The socio-cultural context that devalues girls' education and skills development likely contributes to this gap, as families may be less inclined to invest in technology for their daughters.

Computer Literacy:
The data shows that 26.6% of males report being computer literate, compared to just 13.9% of females. This significant gap in computer literacy is likely exacerbated by socio-cultural barriers that limit girls' opportunities to learn and use digital technologies. Without equal access to these learning opportunities, girls are at a distinct disadvantage in acquiring the digital skills needed to thrive in today's world.

Needs of the community that could be effectively addressed through improved digital services

Table 8: Needs of the community that could be effectively addressed through improved digital services

Sector	Needs
Healthcare	27.5%
Education	31.5%
Financial Services	25.0%
Government Services	16.0%
Total	**100**

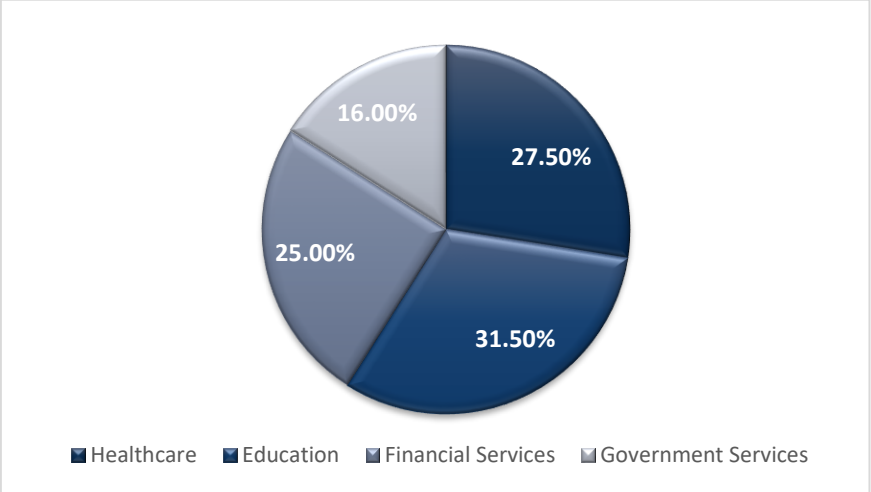

Figure 3: Needs of the community that could be effectively addressed through improved digital services.

Education (31.5%): The highest perceived need for digital services is in education. This sector's significant percentage highlights the critical role that digital tools and resources play in enhancing educational outcomes. It reflects a strong demand for digital solutions that can improve learning experiences, access to educational content, and overall educational infrastructure. Efforts to address this need could include expanding e-learning platforms, improving digital literacy programs, and providing better access to educational technology.

In the field, we have seen firsthand the impact of digital literacy in the context of education, especially as we interviewed students across different sectors, particularly those at the tertiary level. A majority of these students highlighted the challenges they faced when they entered tertiary institutions and struggled to cope with using computers for exams and other learning activities. This was a significant challenge for many, but over time, they were able to acquaint themselves with the use of the internet and digital devices. Now, they find it easier to understand and access learning materials. However, the human capital development component cannot be understated. Investing in digital literacy and human capital development is crucial for ensuring that students not only have access to digital tools but also possess the skills to effectively use them.

Healthcare (27.5%) is identified as a significant area of perceived need for digital services, reflecting a strong demand for digital solutions to enhance healthcare delivery, access to medical information, and patient care. The adoption of digital tools in healthcare could greatly improve the management of health records, the provision of telemedicine services, and the accessibility of health information, all of which are critical for better health outcomes.

Field observations support these findings, particularly in the central areas where respondents are more encouraging and understanding of the potential benefits of telemedicine. This contrasts with far-to-reach areas, where there may be less familiarity or comfort with digital health solutions. For instance, a respondent from the Mari area of Jere Local Government highlighted the potential for significant improvements in health information management and related issues through the use of digital technologies.

Financial Services (25.0%) emerge as a crucial area for the need for digital services, underscoring the importance of digital financial tools in improving access to banking, financial management, and broader economic participation. The significance of digital financial services lies in their potential to foster greater financial inclusion, offering easier access to banking services and enhancing financial literacy.

Our findings from Key Informant Interviews (KII) with POS merchants and mobile money (Momo) agents highlight that the demand for digital financial services cuts across various regions. The expansion of these services could not only facilitate business transactions but also create employment opportunities, particularly in far-to-reach areas. For instance, as digital financial services become more accessible, residents in remote regions would benefit from the convenience of managing finances without needing to travel long distances to traditional banks.

Government Services (16.0%): The perceived need for digital services in government services, though lower compared to sectors like education and healthcare, remains an important area for development. This lower percentage might indicate that, while the need for digital tools in government services is recognized, it is not as pressing or visible to the respondents as in other sectors. However, the potential benefits of enhancing digital government services are substantial, particularly in areas such as transparency, efficiency, public service delivery, and citizen engagement.

Improving Information Dissemination and Policy Tracking: One of the key benefits of digitalizing government services is the improved dissemination of information and more effective policy tracking. Digital platforms can streamline the process of sharing government updates, regulations, and policies with the public, ensuring that citizens are well-informed and can engage more meaningfully in governance. Furthermore, digital tools allow for more efficient tracking of policy implementation, enabling real-time

monitoring and adjustments as necessary, which can lead to better outcomes and more responsive governance.

Inclusion in Governance and Decision-Making: Digital platforms can also play a pivotal role in promoting inclusion in governance and decision-making. By leveraging digital tools, governments can create more inclusive platforms for citizen engagement, allowing people from various regions, including those in far-to-reach areas, to participate in decision-making processes. This can lead to more democratic governance, where the voices of all citizens are heard, and their needs are better reflected in government policies and programs.

Tax Collection and Reduction in Cost of Governance: Another critical area where digital services can make a significant impact is in tax collection and reducing the overall cost of governance. Digital tools can streamline tax collection processes, making it easier for citizens to comply with tax obligations and for the government to manage and track revenue collection. This can lead to increased efficiency, reduced administrative costs, and potentially higher revenue collection, which can be reinvested into public services. Additionally, digital governance can reduce the cost of delivering public services by minimizing the need for physical infrastructure and reducing bureaucracy, leading to more cost-effective governance.

While the perceived need for digital services in government might be lower, the potential benefits of investing in this area are immense. By focusing on information dissemination, policy tracking, inclusion in governance, and more efficient tax collection, digital government services can enhance transparency, efficiency, and citizen engagement. These improvements would contribute to better governance and ultimately benefit the broader population.

Opportunities for partnerships between the community, private sector, and public sector in enhancing digital services?

Opportunities for Partnerships

Maximizing the impact of digital services requires robust partnerships between the community, private sector, and public sector. Each sector brings unique strengths and resources to the table, enabling a comprehensive approach to addressing digital gaps and enhancing overall service delivery.

Table 9: Opportunities for Partnerships

Opportunity	**Percent (%)**
Community Training Programs	61.1
Infrastructure Development	19.2
Joint Funding Initiatives	19.7
Total	**100**

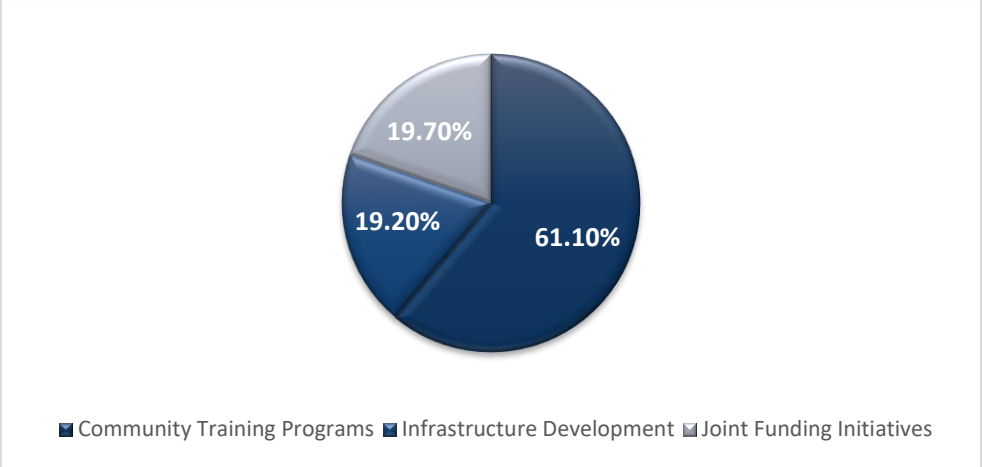

Figure 4: Opportunities for partnership between the community, private sector and public sector in enhancing digital devices

Community Training Programs (61.1%)

Community training programs present a significant opportunity for partnerships to enhance digital services. With a high valid percent indicating interest or need, these programs are crucial for building digital literacy and ensuring that digital tools are effectively utilized by the target population.

Opportunities:

Collaboration with Local Organizations and international organizations:

Current Collaborations and Initiatives

a) **Borno State and ZOA Collaboration:** The ongoing partnership between the Borno State Government, ZOA, through BICTDA is yielding promising results in digital literacy initiatives. This collaboration focuses on enhancing digital skills among local communities, particularly in hard-to-reach areas. By leveraging expertise and resources, the initiative aims to expand digital access and literacy, ensuring that vulnerable populations are not left behind.

b) **NITDA's Nationwide Efforts:** NITDA's work across Nigeria includes various projects aimed at increasing digital literacy and infrastructure. Examples include:
   - **Digital Literacy Programs:** NITDA has been instrumental in rolling out nationwide digital literacy programs, targeting both urban and rural areas to bridge the digital divide.
   - **Infrastructure Development:** Investments in digital infrastructure, such as internet connectivity and hardware provision, are crucial for supporting digital education and services.
   - **Targeting Vulnerable Groups:** Special initiatives are in place to support hard-to-reach populations, including people with disabilities and remote communities, to ensure equitable access to digital tools and education.

c) **Bade LGA and African Development Bank (AfDB):** Bade LGA's collaboration with AfDB represents a strategic effort to boost digital infrastructure and literacy. This partnership focuses on:

- **Building Infrastructure:** Developing the foundational digital infrastructure necessary for effective digital services.
- **Skills Development:** Providing training and resources to equip the local population with essential digital skills.
- **Sustainability:** The success of this initiative will rely on continuous funding, high-quality implementation, and active community engagement by local leaders.

d) **Jakusko LGA:** Jakusko LGA's initiatives to promote digital literacy and awareness are crucial for increasing digital adoption in areas with low technology engagement. Key aspects include:
   - **Public Campaigns:** Raising awareness about digital tools and their benefits through targeted campaigns.
   - **Collaboration with Stakeholders:** Working with various stakeholders to ensure the effectiveness of digital literacy efforts.
   - **Inclusive Strategies:** Addressing the needs of different demographic groups, including the elderly and people with disabilities, to foster broader digital inclusion.

Public Sector Support: Government agencies can offer funding, resources, and logistical assistance to enable extensive training programs in underserved areas. This approach is currently being implemented across all accessible LGAs in Borno State.

Private Sector Involvement: Technology firms can contribute by supplying equipment, software, and expertise, as well as by offering online resources and training platforms.

Infrastructure Development (17%)
Infrastructure development is another critical area where partnerships can play a vital role. Although this represents a smaller percent compared to training programs, it is essential for creating the foundation needed for effective digital service delivery.

Opportunities:
- **Public-Private Partnerships:** Engage with private sector companies to invest in building or upgrading digital infrastructure, such as internet connectivity, community centers, and tech hubs.
- **Government Initiatives:** Governments can provide policy support and funding for infrastructure projects that enhance digital connectivity and access.
- **Community Involvement:** Local communities can assist in identifying infrastructure needs and ensuring that developments are aligned with their specific requirements.

Joint Funding Initiatives (14%)
Joint funding initiatives represent a strategic opportunity for pooling resources from different sectors to support digital service projects. This collaborative approach can help overcome financial barriers and ensure sustainable project implementation.

Opportunities:

- **Cross-Sector Collaboration:** Form partnerships between public agencies, private companies, and community organizations to share the financial burden of digital projects.
- **Grant and Funding Programs:** Create or participate in grant programs that provide funding for digital initiatives, supported by contributions from all sectors involved.
- **Resource Sharing:** Leverage resources such as funding, expertise, and technology through joint initiatives to maximize impact and efficiency.

Our assessment highlights several critical limitations impacting digital inclusion. Poor network coverage and high service costs create significant barriers to access, while inadequate digital literacy prevents effective technology utilization. Accessibility challenges, particularly for individuals with disabilities, and socio-cultural barriers, such as restrictions on girls' mobility and additional workload, further exacerbate these issues.

The study identifies key areas of need where digital tools and resources could have a transformative impact. In education, improved digital resources are essential for better learning outcomes. For healthcare, digital solutions can enhance delivery, information access, and patient care. In the financial sector, digital tools offer opportunities for greater financial inclusion and economic participation. Additionally, digital platforms can improve government service transparency, efficiency, and citizen engagement.

To address these challenges, several opportunities for Community-Private-Public Partnerships (CPPPs) emerge. Developing community-based training programs in collaboration with local and international organizations can boost digital literacy. Investing in network infrastructure through public-private partnerships and government support is crucial for expanding coverage. Furthermore, joint funding initiatives can pool resources from various sectors to tackle digital limitations and drive progress towards inclusive digital growth.

Objective 2: Analyze Digital Product Utilization

In an era marked by rapid technological advancements, the utilization of digital products at the community level has become a critical area of study. Digital products and services, which are intangible goods and services existing in digital form and accessible electronically, play a significant role in various aspects of our daily life. These products, ranging from music and productivity applications to streaming services, online courses, and digital art, can be created, distributed, and consumed digitally, eliminating the need for physical storage or transportation.

While the proliferation of smartphones offers unprecedented opportunities for enhancing access to these digital products, there remains a significant gap between ownership and actual utilization. This study seeks to bridge that gap by examining discrepancies between the high rates of smartphone ownership and the actual use of digital products and services. Beyond smartphones, the study will explore whether access to and engagement with various digital services align with the broader trends in digital product ownership.

Additionally, this research will delve into the reasons behind the underutilization of digital products, despite their availability. This includes an investigation into barriers such as digital literacy, the affordability of services, and access to relevant digital content. The understanding from this study is that digital products and services, being intangible and easily accessible, should theoretically be widely used; however, various factors contribute to their underutilization at the community level. By identifying these gaps and barriers, the study aims to provide insights that will help design interventions and strategies to enhance digital product utilization, ensuring that the benefits of digital technologies are fully realized at the community level and Digital Device Ownership and Socioeconomic Impacts on Digital Engagement.

Device Ownership and Access

The study investigated respondents regarding smartphone and computer/laptop/tablet ownership. The outcomes of this investigation are detailed in Table1. and illustrated in Figure 1.

Table 10: Smart Phone Ownership

Do you own a smartphone?	**Percent**
No	32.90%
Yes	67.10%
Total	**100.00%**

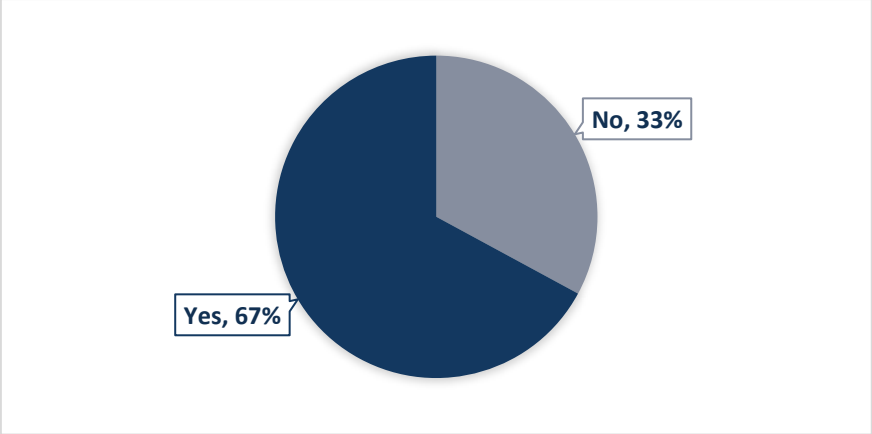

Figure 5: Smart Phone Ownership

Table 11: Usage Purpose

Usage Purpose	Percent
Receive calls only	19%
Receive calls and text messages only	17%
Social media (WhatsApp, Facebook, Twitter, Instagram, etc.)	17%
Mobile banking, online payment, digital marketing, etc.	10%
Use smartphone for all purposes	37%
Total	**100**

Key Findings:
Primary Usage: All purposes (37%): respondents use their smartphones for a variety of tasks, indicating a broad reliance on these devices for multiple purposes.

Communication:
Receive calls only (19%): respondents use their smartphones exclusively for receiving calls, which highlights the importance of basic communication features.

Receive calls and text messages only (17%): respondents use their smartphones only for calling and texting, further emphasizing the primary role of smartphones in basic communication.

Social Media:
Social media use (17%): respondents use social media platforms like WhatsApp, Facebook, Twitter, and Instagram, showing that social connectivity is a significant use case for many.

Digital Services:
Mobile banking, online payment, digital marketing, etc. (10%): respondents engage in digital financial services and other online tools, suggesting a growing but still limited adoption of these technologies.

Digital Divide: While respondents use their smartphones for a wide range of activities, a considerable number of respondents use their devices only for calls, and respondents limit their usage to calls and texts. This disparity suggests a digital divide in how smartphones and how they are been utilized, likely influenced by factors such as education and digital literacy.

Social Connectivity:
The respondents active on social media underline the critical role that smartphones play in social interaction and information exchange, particularly within the Borno and Yobe regions.

Economic Development:
The respondents using digital services like mobile banking indicate a trend towards financial inclusion and economic development. However, the relatively low adoption rate highlights the need for increased awareness and education on the benefits of such services.

Challenges for Non-owners: (32.9% of the total population) do not own smartphones, which significantly limits their ability to participate in the digital economy. This group may miss out on essential benefits like mobile banking, online education, and digital communication.

Digital Service Adoption:
With respondents fully utilizing their smartphones, there's a strong potential for broader adoption of services like e-commerce, digital health applications, and remote learning. However, the true impact of these services depends on how well they are understood and accessed by the population.

The findings suggest that while many are leveraging the full potential of their smartphones, there remains a notable gap in utilization, particularly in the areas of digital financial services and comprehensive smartphone use. Addressing this digital divide will be key to ensuring that the benefits of digital technologies are more evenly distributed across the population.

Computer and other digital device ownership
On the issue of owning either a computer or other digital electronic devices the findings from respondents are as indicated in Table12. A pictorial representation of the findings is as presented in Figure 6.

Table 12: Computer and other digital device ownership

Ownership Status	**Percent**
No	82.20%
Yes	17.80%
Total	**100.00**

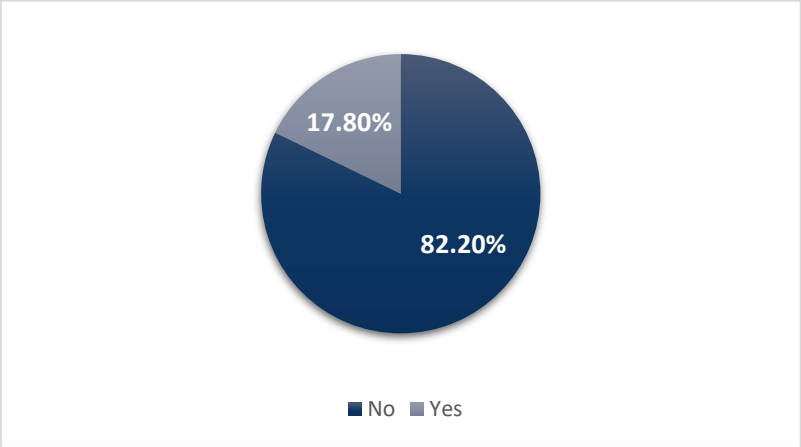

Figure 6: Chart representation of computer or other digital devices

High Non-Ownership Rate: A significant majority amounting to eighty two percent (82.2%) of the respondents do not own a computer, laptop, or tablet. This could indicate several factors such as economic constraints, lack of necessity, or preference for other devices like smartphones.

Low Ownership Rate: Only about seventeen percent (17.8%) of the respondents own a computer, laptop, or tablet. This advocates that a smaller segment of the population has access to these devices, which could impact their ability to perform tasks that require such technology, like remote work or online learning.

Digital Divide: The data highlights a potential digital divide, where a large portion of the population may not have access to essential technology. This divide can affect educational opportunities, job prospects, and access to information.

Market Opportunities: For businesses, this data could indicate a market opportunity to increase the penetration of computers, laptops, and tablets. Strategies could include affordable pricing, financing options, or educational programs to highlight the benefits of owning such devices.
Policy Implications: For policymakers, these findings could underscore the need for initiatives to improve technology access. This could involve subsidies, public access programs, or partnerships with tech companies to bridge the gap.

Table 13: Digital Application Usage

Activity	**Usage (%)**
Word Processing Only	23%
Word Processing, Spreadsheet, Graphics, and Presentation	23%
Social Media (WhatsApp, Facebook, Twitter, Instagram, etc.)	32%
Mobile Banking, Online Payment, Digital Marketing, etc.	22%
Total	**100**

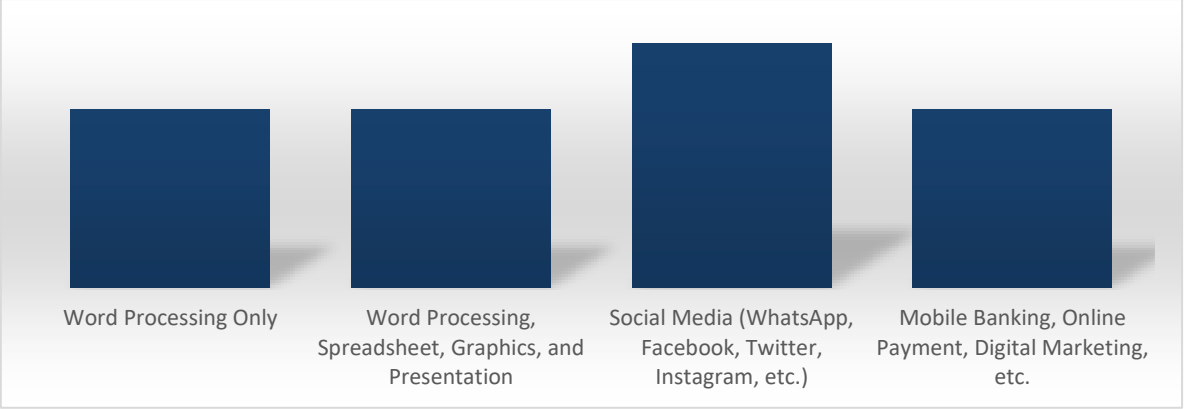

Figure 7: Chart representation of digital application usage

Table 13 outlines the different digital applications usage by populace in Borno and Yobe States using their computers or laptops.

The findings are indicative of broader trends in digital literacy, economic participation, and social engagement within these communities. Each category of device usage reflects distinct aspects of how technology is integrated into daily life in these regions.

Word Processing

A significant portion of the population, uses their computers or laptops primarily for word processing tasks. This category likely includes activities such as document creation, report writing, and other text-based tasks.

Implications for Education and Employment:

Education: This usage pattern suggests that word processing is a foundational digital skill in Borno and Yobe States.

It may be especially prevalent among students, teachers, and office workers. The reliance on word processing underscores the importance of basic computer literacy programs in these regions.

Employment: For professionals, particularly those in administrative roles or the public sector, word processing is a critical tool for job performance. This highlights the role of digital devices in enhancing productivity and efficiency in the workplace.

Challenges:

Limited Usage: The focus on word processing might indicate a limited scope of digital skills. Users who only engage in this activity may not be fully leveraging the broader potential of their devices for other productive or creative purposes.

Word Processing, Spreadsheet, Graphics, and Presentation

This category encompasses a more advanced level of digital literacy, with 24% of users engaging in a range of activities that include word processing, spreadsheet management, graphics design, and presentation creation.

Implications for Skill Development:
Professional Skills: The use of spreadsheets and presentation tools suggests that these users are likely engaged in more complex and varied tasks, possibly in business, education, or administration. The inclusion of graphics design also indicates a creative component, which could be linked to fields such as marketing, design, and content creation.

Economic Opportunities: Mastery of these tools opens up opportunities in various sectors, including finance, education, and media. For instance, the ability to use spreadsheets is crucial for roles in accounting and data management, while presentation skills are valuable in education and business communications.

Challenges:
Access to Training: The relatively lower percentage (compared to basic word processing) may point to a gap in access to advanced digital skills training in Borno and Yobe. Expanding training programs that cover these areas could enhance the employability and productivity of more people in these regions.

Social media (WhatsApp, Facebook, Twitter, Instagram, etc.)
The highest percentage of users (33%) are engaged in social media activities. This indicates the prominence of social media platforms as a primary use case for computers and laptops in these regions.

Implications for Social Connectivity:
Communication and Networking: Social media platforms are critical for communication, especially in regions like Borno and Yobe, where physical connectivity might be limited due to security issues. These platforms enable users to maintain social ties, engage in community discussions, and access news and information.

Civic Engagement: social media can also serve as a platform for civic engagement, allowing residents to participate in discussions on local and national issues. This is particularly important in conflict-affected regions where traditional forms of public discourse may be disrupted.

Economic Impact:
Digital Marketing: The use of social media for business purposes, such as digital marketing, is likely contributing to local economies. Individuals and small businesses can reach broader markets beyond their immediate geographical area, which is crucial in regions with limited physical market access.

Challenges:
Misinformation and Cybersecurity: The widespread use of social media also raises concerns about the spread of misinformation and the potential for cyber threats. Addressing these issues through digital literacy programs that include cybersecurity awareness is essential for protecting users.

Mobile Banking, Online Payment, Digital Marketing, etc.
With 24% of users engaged in mobile banking, online payments, and digital marketing, this category reflects the growing integration of digital financial services and e-commerce in Borno and Yobe States.

Implications for Financial Inclusion:
Access to Financial Services: The use of mobile banking and online payment platforms indicates that a significant portion of the population is engaging with the formal financial sector through digital means. This is a positive trend for financial inclusion, especially in areas where access to physical banks may be limited.

Economic Empowerment: Digital marketing and e-commerce are empowering local entrepreneurs to reach wider markets, diversify their income sources, and build more resilient businesses. This is particularly important in conflict-affected areas, where traditional economic activities might be disrupted.

Challenges:
Digital Literacy and Trust: The adoption of digital financial services requires a certain level of digital literacy and trust in the security of these platforms. Ensuring that users are educated on the safe use of these services is crucial for sustaining this trend.

Infrastructure: The effectiveness of digital financial services also depends on the underlying infrastructure, including reliable internet connectivity and mobile network coverage.

In Borno and Yobe States, where infrastructure may be lacking, addressing these issues are critical for broader adoption.

Smartphone Ownership by Age Category in the Context of Borno and Yobe States
Table 14: Smartphone Ownership by Age Category

Age Category	Do Not Own a Smartphone (%)	Own a Smartphone (%)	Total (%)
18 to 25	33.60%	66.40%	100.00%
26 to 30	23.00%	77.00%	100.00%
31 to 35	31.30%	68.70%	100.00%
36 to 40	28.40%	71.60%	100.00%
Greater than 40	48.20%	51.80%	100.00%

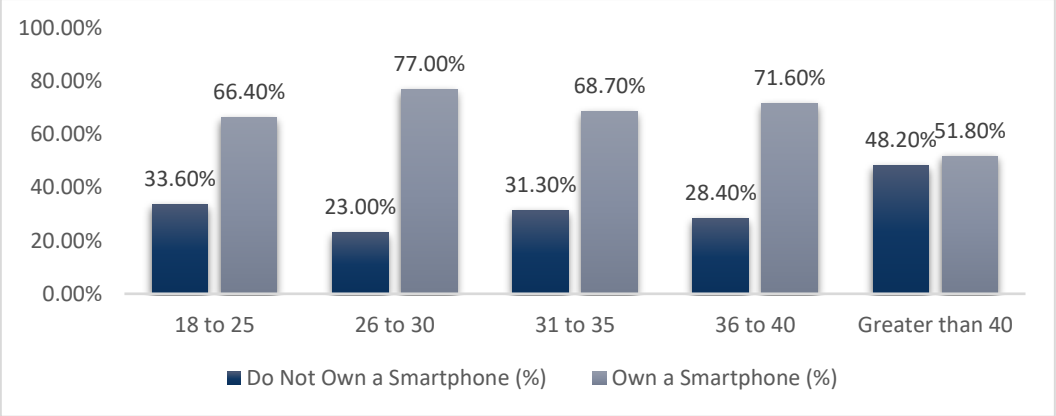

Figure 8: Smartphone Ownership by Age Category

Our findings in Borno and Yobe States have revealed critical insights into smartphone ownership patterns across various age categories.

These findings are significant for understanding the digital landscape in these regions, particularly in the context of ongoing efforts to bridge the digital divide and enhance digital inclusion.

1. High Smartphone Ownership Among Younger Populations
    - Age 18 to 25: 66.4% Ownership
    - Age 26 to 30: 77.0% Ownership

Younger populations in Borno and Yobe States demonstrate high rates of smartphone ownership, similar to global trends.

This high ownership rate is crucial for several reasons:

- Digital Engagement: Younger people in these regions are more likely to engage in digital activities, including social media, online education, and digital financial services. This engagement is essential for the success of digital literacy programs, as these age groups are often early adopters of technology.
- Economic Opportunities: With smartphones, younger people in Borno and Yobe can access various economic opportunities, such as online marketing and mobile banking. This is particularly important in these states, where traditional economic opportunities may be limited due to security challenges and underdevelopment.

2. Moderate Ownership in Middle-Aged Populations
    - Age 31 to 35: 68.7% Ownership
    - Age 36 to 40: 71.6% Ownership

While ownership remains high in these age groups, it slightly declines compared to the younger population. This reflects a balancing of personal and professional smartphone use. In Borno and Yobe States, where economic activities are often disrupted by conflict, the ability to use smartphones for both work and personal purposes can be vital for resilience and adaptation.

- Implication for Digital Services: As digital services expand in these regions, targeting middle-aged populations with tailored interventions (e.g., mobile-based entrepreneurship training or digital financial literacy) could enhance

their engagement with digital tools, thereby improving their economic resilience.

3. Lower Smartphone Ownership Among Older Populations
    - Age Greater than 40: 51.8% Ownership
    - Older adults in Borno and Yobe exhibit lower smartphone ownership rates, similar to global trends. This presents several challenges:
    - Digital Exclusion: Lower ownership rates in this demographic suggest that older adults may be more digitally excluded, missing out on the benefits of digital services such as telemedicine, online banking, and information access.
    - Barriers to Adoption: Factors such as lower digital literacy, economic constraints, and cultural attitudes towards technology could be contributing to this lower ownership. In Borno and Yobe, where traditional practices and economic hardships are prevalent, these barriers might be more pronounced.

4. Youth Ownership (Less than 18 Years): 60.0% Ownership

The relatively high smartphone ownership among youth under 18 in Borno and Yobe State is a positive indicator of increasing digital access:

- Implications for Education: Smartphones are becoming critical tools for education, especially in remote and conflict-affected areas where access to traditional educational resources is limited. This trend is vital for initiatives like digital literacy programs aimed at young learners.
- Future Workforce: As these youths grow older, their familiarity with digital tools can contribute to a more digitally savvy workforce in Borno and Yobe States, aiding in the regions' long-term development.

Implications for Borno and Yobe States

1. Targeted Digital Inclusion Programs:

There is a need for age-specific digital inclusion programs. Younger populations are more likely to be digitally engaged, so efforts should focus on sustaining and enhancing their digital skills. For older adults, programs that address digital literacy and provide affordable access to smartphones could help reduce digital exclusion.

2. Economic Empowerment:

Smartphone ownership among younger and middle-aged individuals presents an opportunity for economic empowerment. Programs that teach digital marketing, mobile banking, and other digital skills can help these populations leverage their devices for economic gain, crucial in the economically strained environments of Borno and Yobe States.

3. Support for Older Adults:

Special attention is needed for the older population, who are at risk of being left behind in the digital transition. Initiatives such as community-based training sessions, subsidies for digital devices, and culturally sensitive outreach could improve smartphone adoption in this group.

4. Youth and Educational Initiatives:

Given the significant smartphone ownership among the youth, educational initiatives that utilize mobile technology can be highly effective. These programs should be expanded, particularly in conflict-affected areas where traditional schooling is disrupted.

Smartphone ownership by Local Government Area (LGA)

Table 15: Smartphone Ownership by LGA

Local Government Area (LGA)	No (%)	Yes (%)	Total (%)
Askira/Uba	32.7	67.3	100
Bade	25.3	74.7	100
Biu	39.6	60.4	100
Damaturu	41.9	58.1	100
Fika	24.2	75.8	100
Gujba	44.9	55.1	100
Hawul	14.3	85.7	100
Jakusko	16	84	100
Jere	9.5	90.5	100
Konduga	10.20	89.08	100
MMC	29.1	70.9	100
Mobbar	45	55	100
Monguno	18.8	81.2	100

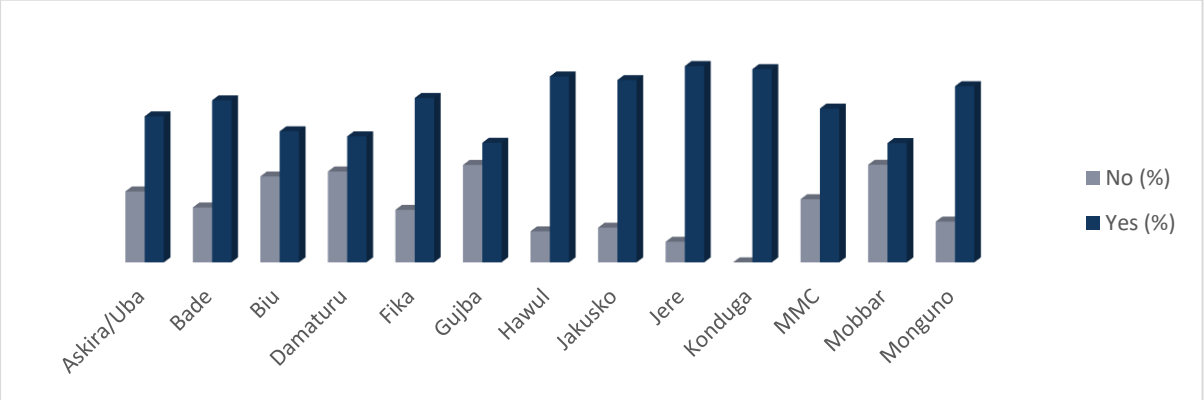

Figure 9: Smartphone ownership by LGA

Key Insights and Implications on Smartphone Ownership by LGA

1. Variations in Smartphone Ownership across LGAs

Smartphone ownership rates vary significantly across different areas, with some locations reporting nearly universal ownership, while others have much lower adoption. These variations are influenced by factors such as network coverage, economic conditions, access to digital services, and socio-political stability.

2. High Smartphone Ownership in Some Areas

Certain areas have a strong presence of smartphone users, indicating better accessibility, affordability, and digital awareness. These regions present significant opportunities for expanding digital services, as residents are already equipped with the necessary devices.

3. Moderate Ownership in Several Locations

A number of areas report steady, but not universal, smartphone adoption. In these locations, access barriers may include cost, limited digital skills, or concerns about the relevance of digital tools.

4. Low or Non-Existent Smartphone Ownership in Certain Areas

Some locations exhibit notably low smartphone penetration, with a significant portion of the population lacking access to these devices. The reasons may include economic

hardship, inadequate infrastructure, security challenges, or cultural attitudes toward technology.

Having a smartphone does not necessarily indicate digital literacy. While access to devices is an important step toward digital inclusion, the ability to use them effectively for communication, education, and economic empowerment remains a key challenge.

Implications of Smartphone Ownership Trends

1. Digital Access vs. Digital Use

The presence of smartphones in some areas does not automatically translate to active digital engagement. Limited network infrastructure, affordability of data, and lack of digital literacy may prevent users from fully utilizing their devices for essential services such as online education, e-commerce, and digital financial transactions.

2. Economic and Social Opportunities

Higher smartphone ownership in certain areas suggests a potential for leveraging digital tools to enhance livelihoods, facilitate communication, and improve access to critical services. However, without targeted interventions, disparities in smartphone ownership may widen existing inequalities in economic opportunities and access to information.

3. Challenges in Low-Ownership Areas

In areas where smartphone ownership is low, barriers such as economic constraints, security concerns, and cultural norms could be limiting adoption. These regions may struggle to benefit from digital initiatives, further deepening the digital divide and reducing access to essential services like telemedicine, mobile banking, and digital learning platforms.

4. Network and Infrastructure Limitations

Even in areas with high smartphone ownership, the availability and reliability of mobile networks play a crucial role in determining actual usage. Without sufficient infrastructure, smartphone users may be unable to access the full range of digital services, limiting the overall impact of mobile technology in these regions.

Having a smartphone does not necessarily equate to digital literacy. While device ownership is a foundational step, the ability to effectively navigate and utilize digital platforms remains a critical challenge in bridging the digital divide.

In this research, we will further explore smartphone usage and productivity among those who own these devices, examining what they use them for and the extent of their digital engagement. This deeper analysis will broaden our understanding of smartphone ownership beyond mere access, shedding light on how effectively these devices are utilized.

By doing so, we will also identify potential areas for investment that can enhance digital inclusion and maximize the benefits of smartphone usage in various aspects of daily life.

Income and Digital Product Utilization

The relationship between income levels and digital product utilization is a critical factor in understanding the digital divide in Nigeria, particularly in regions like Borno and Yobe States, as well as in hard-to-reach areas such as Monguno, Gowza, and Gujiba LGAs. This analysis illustrates how income affects access to and utilization of digital products, reflecting broader socio-economic trends that shape digital literacy and engagement across different communities.

Table 16: Income and Digital Product Ownership

Income Range (₦)	Categories	Percentage of Respondents (No)	Percentage of Respondents (Yes)
Less than ₦10,000	A	57.07%	42.93%
₦10,000 - ₦50,000	B	40.64%	59.36%
₦50,001 - ₦100,000	C	36.04%	63.96%
₦100,001 - ₦200,000	D	17.39%	82.61%
More than ₦200,000	E	0.00%	100.00%

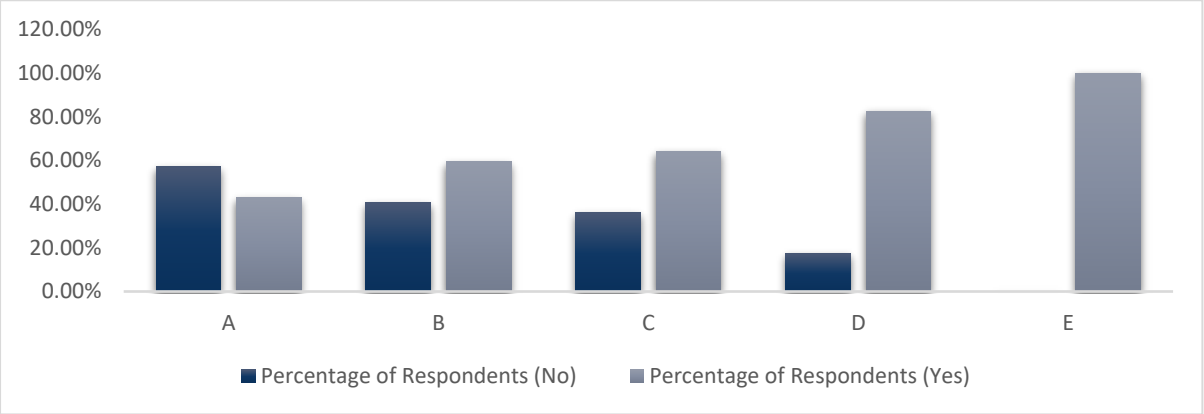

Figure 10: Income and Digital Product ownership

5. **Less than ₦10,000 (Low-Income Bracket)**

No Response (57.07%): A majority of respondents in this income bracket do not engage with digital products. This high percentage reflects the financial constraints faced by low-income households, where the cost of smartphones, internet data, and other digital services may be prohibitive. In rural and hard-to-reach areas like Gujiba and Gowza LGA, where digital infrastructure is limited, affordability is compounded by poor access to technology. Residents in this group are likely to prioritize basic needs over investing in digital tools, which impacts their ability to engage with digital services or educational tools.

Yes Response (42.93%): While nearly 43% of respondents in this group do access digital products, this is likely due to shared or community-based resources, such as public computer centers or digital literacy programs run by NGOs or the government. In some cases, residents may borrow devices or rely on informal networks for access.

This shows that even in financially constrained environments, there is some level of engagement, but it is insufficient to achieve widespread digital literacy.

6. **₦10,000 - ₦50,000 (Lower-Middle Income Bracket)**

No Response (40.64%): Though the percentage of non-users remains relatively high, it is lower compared to the lowest income group. People in this income range may still face barriers to digital engagement due to the cost of maintaining internet access and devices. However, their ability to invest in occasional digital access or to purchase lower-end smartphones may be greater. In areas like Bade and Monguno LGAs, where digital

infrastructure is minimal, this group may struggle with both affordability and accessibility.

Yes Response (59.36%): More than half of the respondents in this income range engage with digital products. This suggests that as income rises, there is an increase in disposable income, which allows for greater access to devices like smartphones, data plans, and internet services. In regions like Damaturu, where infrastructure is better, residents in this group are more likely to access digital services for education, commerce, or social interactions, showing a positive correlation between increased income and digital engagement.

7. **₦50,001 - ₦100,000 (Middle Income Bracket)**

No Response (36.04%): At this income level, fewer respondents report being unable to access digital products, indicating that financial barriers are starting to diminish. The reduction in the "No" percentage shows that people in this income range are more likely to own their own digital devices and access services more regularly. However, in hard-to-reach areas like Monguno, a lack of infrastructure may still limit the ability of this group to fully utilize digital services, despite having the financial means.

Yes Response (63.96%): The majority of respondents in this category are actively engaging with digital products. This reflects a level of financial security that allows for regular access to technology. In urban areas like Biu and Damaturu, where infrastructure is better, this group likely enjoys more consistent access to digital tools for business, education, and social purposes. This income group is positioned to benefit from Nigeria's growing digital economy and services like mobile banking and online learning platforms.

8. **₦100,001 - ₦200,000 (Upper-Middle Income Bracket)**

No Response (17.39%): Very few respondents in this income bracket report not engaging with digital products, suggesting that affordability is no longer a significant barrier. For this group, access to digital devices, such as laptops, tablets, and high-end smartphones, is relatively easy. However, in hard-to-reach areas like Gujiba or Gowza, even those with higher incomes may still face challenges in accessing reliable digital infrastructure (such as broadband internet), which can limit their digital engagement.

Yes Response (82.61%): A large majority of respondents in this group actively use digital products, reflecting that higher income almost guarantees access to digital services. This group likely utilizes digital products not just for communication but for more advanced purposes such as online shopping, professional networking, or digital financial services.

In urban areas with better infrastructure, they are fully integrated into the digital economy, demonstrating how income enhances the ability to engage with and benefit from digital tools.

9. **More than ₦200,000 (High-Income Bracket)**

No Response (0.00%): None of the respondents in this highest income category reported not utilizing digital products. This indicates that financial barriers are virtually non-existent for this group. In fact, those in this income bracket likely have multiple devices, regular access to the internet, and make use of a wide range of digital services. Even in hard-to-reach areas, individuals with higher incomes may overcome infrastructure barriers by investing in satellite internet or traveling to urban centers for digital services.
Yes Response (100.00%): Full engagement with digital products in this category highlights the direct link between income and digital literacy. High-income earners are more likely to be technologically savvy and utilize digital tools for a variety of purposes, from professional tasks to entertainment. This group is also more likely to invest in continuous digital learning, thus staying at the forefront of the digital revolution.

Overall Insights:
Income as a Key Determinant of Digital Engagement:
Income significantly influences whether individuals can access and utilize digital products. Lower-income respondents struggle with affordability and often rely on informal networks or community centers for access, while higher-income groups enjoy seamless engagement due to their ability to purchase devices, internet access, and digital services.

Hard-to-Reach Areas Compound Digital Access Challenges:
In regions like Monguno, Gowza, and Gujiba LGAs, where digital infrastructure is limited, even those with middle or higher incomes face access challenges due to the lack of reliable internet, learning centers, or digital literacy programs. Although higher-income individuals might find workarounds, such as private solutions for connectivity, the broader population remains largely disconnected. Lower-income groups in these areas are particularly vulnerable to being left behind in the digital economy.

Urban Areas with Better Infrastructure See More Engagement:
In areas like Biu and Damaturu, where infrastructure is stronger, even lower-income individuals have more opportunities for digital engagement. The presence of computer centers, educational institutions, and better network coverage allows more people, regardless of income, to gain digital literacy and participate in digital markets.

This analysis shows that income is a critical factor in determining digital product utilization, with higher income leading to greater access and engagement. In hard-to-reach areas like Monguno and Gowza, infrastructural deficits exacerbate the digital divide, making it difficult for even those with higher incomes to engage fully with digital products.

Bridging the digital divide in Nigeria will require not only improving infrastructure but also implementing targeted interventions for lower-income and hard-to-reach populations to ensure equitable digital access across the board.

Table 17: Device access by Disability Status

Disability Type	No Mobile Phone (%)	Yes, Mobile Phone (%)
Cognitive	30.30%	69.70%
Hearing	28.60%	71.40%
Visual	32.90%	67.10%
Physical	24.60%	75.40%

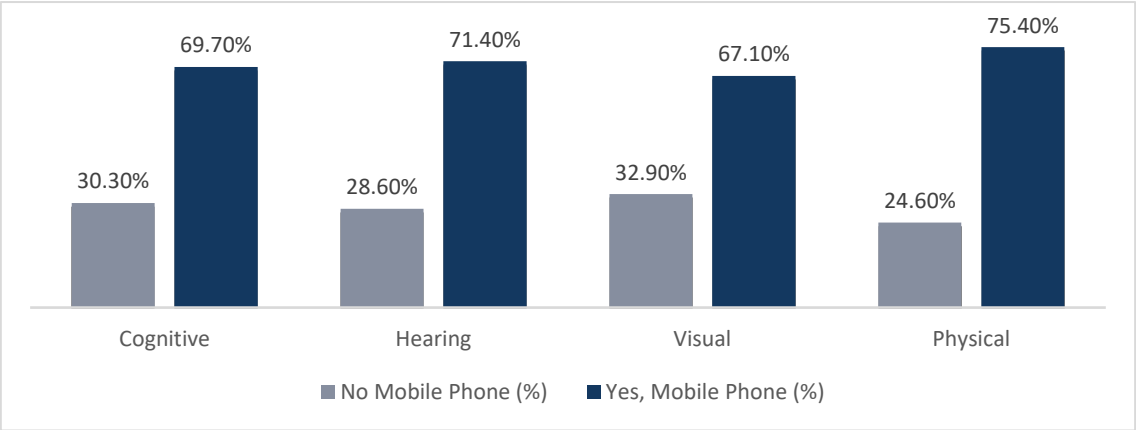

Figure 11: Device access by Disability Status

The overall mobile phone ownership among people with disabilities is 68.7%, while 31.3% do not own a mobile phone. This indicates that nearly one-third of individuals with disabilities are potentially excluded from accessing digital services, which could hinder their ability to participate fully in modern society.

Physical Disabilities:
Individuals with physical disabilities have a higher rate of mobile phone ownership at 68.7%. This suggests that while many people with physical disabilities have access to mobile devices, there remains a significant minority (31.3%) who do not, likely due to challenges related to the physical usability of devices or socioeconomic factors. People on the wheel chair and those with lower limb count not access many of the ICT facilities and digital hubs visited during this study.

Visual Disabilities:
Those with visual disabilities show a higher rate of non-ownership at 31.3%, with 68.7% owning a mobile phone. The challenges here could include the accessibility of mobile devices and apps for those with visual impairments. Despite the availability of assistive technologies, barriers such as affordability and awareness may prevent full utilization.

Hearing Disabilities:
People with hearing disabilities have a slightly lower ownership rate of 68.7%, with 31.3% not owning a mobile phone. This indicates potential barriers in access to devices that are fully accessible for people with hearing impairments, despite advancements in technology that offer features like captioning and hearing aids compatibility.

Cognitive Disabilities:
Individuals with cognitive disabilities have a mobile phone ownership rate of 68.7%, similar to other groups. However, the barriers they face may differ, such as the complexity of using devices and the availability of user-friendly interfaces. The 31.3% without access may represent those who find the technology too challenging to use or who lack the support to navigate digital platforms effectively.

Digital Exclusion:
The significant portion of people with disabilities who do not own mobile phones highlights a form of digital exclusion that could lead to broader social exclusion. Access to digital devices is crucial for communication, education, employment, and access to services, making this gap particularly concerning.

Need for Accessible Technology:
The disparities in ownership suggest that current digital devices may not be fully meeting the needs of people with disabilities. There is a need for more inclusive design and affordable assistive technologies that cater to the specific needs of different disability groups.

Economic and Social Impact:
Addressing these disparities is not just a matter of equity; it has significant economic and social implications. By ensuring that people with disabilities have equal access to digital devices, society can benefit from their full participation in the economy and community life.

Device Access by Gender

Table 18: Device Access by Gender

Gender	Own Smartphone (%)	Do Not Own Smartphone (%)	Own Computer/ Laptop/ Tablet (%)	Do Not Own Computer/ Laptop/ Tablet (%)
Female	57.30%	42.70%	13.20%	86.80%
Male	74.90%	25.10%	21.30%	78.70%

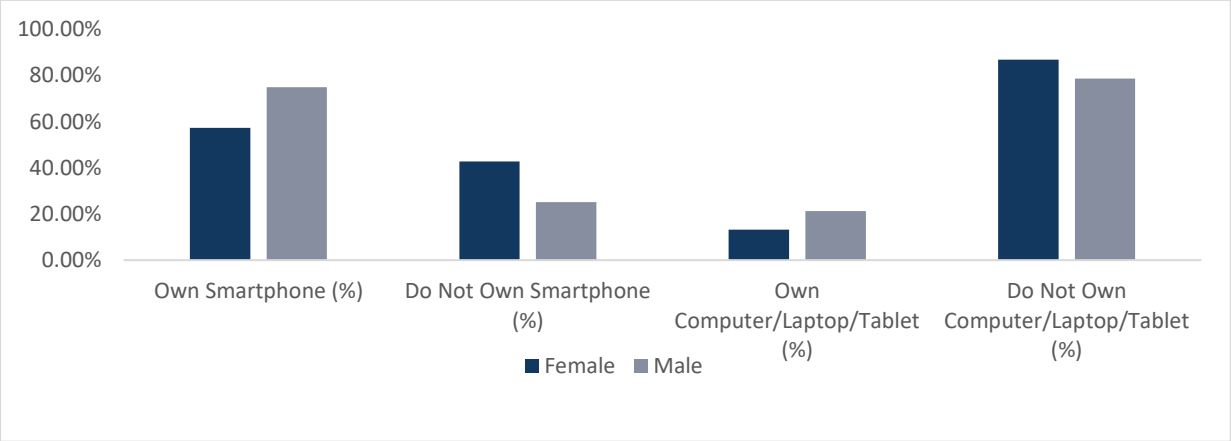

Figure 12: Device Access by Gender

The data highlights a significant gender disparity in digital device ownership:

Smartphone Ownership:
57.3% of women own a smartphone compared to 74.9% of men. This gap suggests that women have less access to the most widely used digital device, which could impact their ability to engage in various online activities such as digital banking, social media, and accessing essential services.

Computer/Laptop/Tablet Ownership:
13.2% of women own a computer, laptop, or tablet, compared to 21.3% of men. This further illustrates the limited access women have to more advanced digital tools, which are crucial for activities such as online education, professional work, and more complex digital interactions.

Implications for Women
Digital Inclusion: The lower ownership of smartphones and computers among women points to a digital divide that could exacerbate existing inequalities. Women may face challenges in accessing information, education, and economic opportunities that are increasingly moving online.

Economic Empowerment: With less access to digital devices, women are likely to have fewer opportunities for economic activities such as online businesses, digital marketing, and freelance work, which often require both smartphones and computers.
Access to Services: Women's limited access to smartphones and computers might restrict their ability to utilize essential services such as telemedicine, online banking, and government services, which are increasingly digital.

Social Connectivity: The lower rate of smartphone ownership among women could also limit their ability to connect with social networks and communities, potentially affecting their social support systems and access to information.

Educational Disparities in Digital Literacy
The data also shows significant disparities in where and how individuals acquire digital skills. 23.6% of respondents learned to use digital devices in community primary schools, and 27.8% in secondary schools. These figures suggest that while formal education plays a role in developing digital literacy, it is not universally effective, as a significant proportion of the population did not gain these skills through the education system. This may reflect a lack of resources or emphasis on digital education within schools, particularly in the early stages of education.

The fact that 24.7% of respondents acquired their digital skills in tertiary institutions further emphasizes the role of higher education in digital literacy. However, the fact that a majority did not learn to use digital devices even at the tertiary level points to potential gaps in the curriculum and access to technology in these institutions.

The United Nations has highlighted the need for integrating digital literacy into education systems globally, arguing that digital skills are essential for participation in the modern economy *(United Nations, 2020)*.

Access to Devices and Internet Services

Despite the low ownership rates of digital devices, 62.4% of respondents have access to these devices and internet services through various means, including family members, friends, community digital hubs, and private cybercafés. This indicates that while personal ownership is low, there is a significant reliance on shared resources. 9.4% of respondents access computers or laptops through friends, and 6.3% use private cybercafés or digital hubs, reflecting the communal nature of digital engagement in these areas.

The reliance on shared access points to broader socioeconomic factors that limit personal ownership of digital devices, such as income levels, educational background, and access to financial services. The digital divide, therefore, is not only a matter of access but also of economic inequality.

The ITU and UN have both advocated for policies that address these socioeconomic barriers, including subsidies for device ownership and the expansion of community-based digital hubs *(ITU, 2021; United Nations, 2020)*.

Digital Literacy and Competency Levels: Self-Assessment of Digital Skills

The table below summarizes respondents' self-assessed digital literacy and competency levels across four key areas: Digital & Software Operation, Information & Data Literacy, Communication & Collaboration, and Digital Content Creation.

The table shows the percentage of respondents who rated themselves at the foundational level and those who consider themselves highly specialized in each area.

Table 19: Digital Literacy and Competency Levels: Self-Assessment of Digital Skills

Digital Skills Area	Foundation Skills (%)	Highly Specialized Skills (%)	Total (%)
Digital & Software Operation	61.5%	38.5%	100%
Information & Data Literacy	71.2%	28.8%	100%
Communication & Collaboration	48.3%	51.7%	100%
Digital Content Creation	80.2%	19.8%	100%

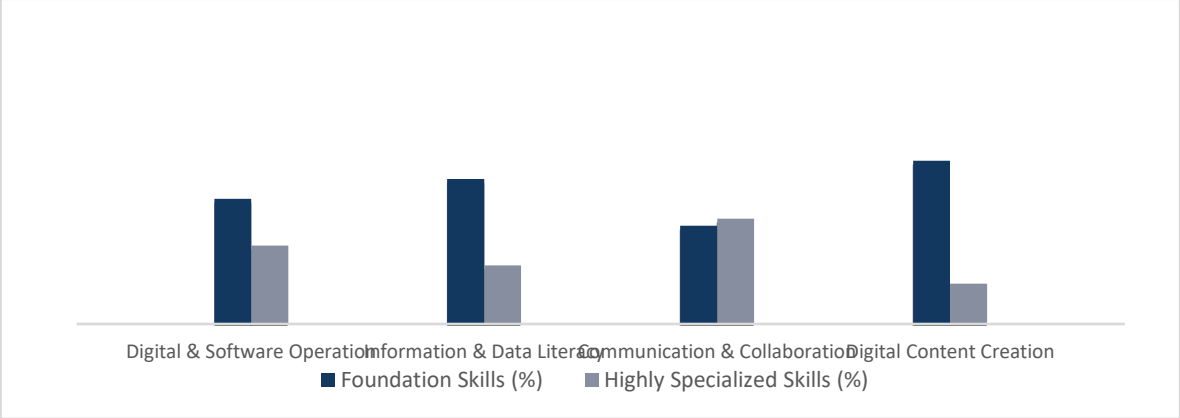

Figure 13: Digital Literacy and Competency Levels: Self-Assessment of Digital Skills

1. **Digital and Software Operation**

Foundation Skills (61.5%): The majority of respondents have basic digital and software operation skills, such as navigating operating systems, managing files, and using common software applications. This foundational level is crucial for general digital competency and access to further digital learning.

Highly Specialized Skills (38.5%): A significant portion of respondents has advanced skills in this area, which includes tasks like system administration and advanced software usage. However, there is still a gap between basic and specialized competencies.

Implications: The gap between foundational and specialized skills in digital and software operation highlights a need for more advanced training opportunities. This would be particularly beneficial in regions like Borno and Yobe States, where enhancing digital skills could lead to increased employment opportunities and economic growth.

2. **Information and Data Literacy**

Foundation Skills (71.2%): A strong majority of respondents possess foundational skills in information and data literacy, which are essential for effectively finding, evaluating, and using information.

Highly Specialized Skills (28.8%): Fewer respondents are highly specialized in this area, indicating a potential weakness in advanced data analysis and critical evaluation skills.
Implications: Improving advanced information and data literacy skills is critical for enabling individuals to navigate complex digital environments.

This is particularly important for professional settings in Borno and Yobe State, where data-driven decision-making could improve organizational outcomes.

3. **Communication and Collaboration**

Foundation Skills (48.3%): Nearly half of the respondents have basic communication and collaboration skills, such as using email and social media, which are essential for everyday digital interactions.

Highly Specialized Skills (51.7%): A slightly larger proportion of respondents possess advanced skills in this area, likely due to the growing importance of digital collaboration tools in remote work and education.
Implications: The relatively balanced distribution of foundational and specialized skills suggests that many users are progressing beyond basic communication tools. This trend is promising for the development of more sophisticated digital collaboration strategies in educational and professional contexts in Borno and Yobe States.

4. **Digital Content Creation**

Foundation Skills (80.2%): The majority of respondents have basic digital content creation skills, which are essential for producing documents, presentations, and simple graphics.
Highly Specialized Skills (19.8%): A small proportion of respondents are highly specialized in content creation, indicating that while many can create basic content, few have the expertise needed for professional digital media production.
Implications: The high percentage of respondents with foundational content creation skills suggests a solid base for further development. However, there is a significant opportunity to train individuals in more advanced content creation techniques, which could open up new avenues for employment and digital entrepreneurship in Borno and Yobe State. These figures suggest that while there is a basic level of digital literacy within the community, advanced skills are rare, indicating a significant gap in digital competency that could limit opportunities for economic participation and personal development. The United Nations and ITU both emphasize the need for targeted digital literacy programs that move beyond foundational skills to develop advanced competencies that are crucial for engagement in the digital economy (*United Nations, 2020; ITU, 2021*).

The survey findings on digital product utilization reveals several key insights. Firstly, despite high rates of smartphone ownership, there is a significant gap in the actual use of digital products and services. This suggests that owning a device alone is not sufficient for effective engagement with digital content. Crucial factors like digital literacy, affordability, and access to relevant content significantly influence whether individuals can fully utilize their devices.

Also, the study identifies key barriers to digital product utilization. Digital literacy, or the ability to effectively navigate and use digital tools, is a major obstacle. Many smartphone owners lack the necessary skills to maximize their devices' potential. Affordability also emerges as a critical barrier, as the cost of digital services may be too high for some users. Additionally, access to relevant content is vital—if digital products do not align with the needs or interests of the community, their utilization will remain low.

While smartphone ownership is widespread, significant gaps remain in the effective utilization of digital products and services. Addressing barriers such as digital literacy, affordability, and access to relevant content is essential for ensuring that individuals can fully leverage their devices to enhance their economic opportunities and overall digital

engagement. Empowering users with the necessary skills and resources will be critical in bridging the digital divide and maximizing the benefits of digital transformation in the community.

Discussion of Findings on Digital Literacy, Access to Digital Devices and Learning Environment

The study surveyed 992 respondents to assess how digital literacy is developed and how access to digital devices varies, particularly focusing on hard-to-reach areas such as Gujiba, Monguno, Mobbar, and Fika LGAs. The results shed light on significant disparities in both digital literacy and access to digital devices, influenced by learning environments and geographical factors.

Learning Environments

Formal Education Settings: The data indicates that a substantial majority of respondents did not learn digital skills through formal education institutions such as secondary schools or tertiary institutions. This suggests that formal education is not the primary source of digital skills for many individuals. Specifically:

A large proportion of respondents did not receive digital education in secondary schools. Similarly, a notable number did not gain digital skills through tertiary institutions.

This trend is particularly evident in remote or underserved areas where the infrastructure and resources for formal digital education may be lacking. This gap highlights a critical challenge: formal educational settings are insufficient in providing widespread digital literacy, especially in regions with limited access to such institutions.

Informal Learning Environments: In contrast to formal education, informal learning environments such as learning from friends or family at home or through community digital hubs play a crucial role. Despite this, the findings reveal:

A significant number of respondents did not learn digital skills at home from friends or family.

Many also did not have access to community digital hubs for learning, this indicates that while informal learning avenues are important, they are not universally accessible or effective. The lack of engagement with these informal learning sources further exacerbates the digital skills gap, as many individuals in the surveyed communities may not have adequate opportunities to develop their digital competencies.

Access to Digital Devices

Personal Access: A majority of respondents reported having personal access to digital devices such as computers, laptops, tablets, and internet services. This is a positive indicator of device ownership and availability, suggesting that personal access is a significant factor in digital engagement. Shared and Public Resources: However, a considerable portion of the population relies on shared or external sources for their digital needs:

Devices from family members
Devices from friends.
Access through community digital hubs and private cybercafés.
This reliance on shared resources points to a potential issue of consistency and reliability in digital access. Individuals who depend on these external sources may face limitations in terms of availability, quality, and frequency of use, which can hinder their ability to fully engage with digital technologies.

Impact on Hard-to-Reach Areas
The findings are particularly concerning for hard-to-reach areas like Gujiba, Monguno, Mobbar, and Fika LGAs:

1. **Gujiba LGA**: Faces notable challenges due to insufficient digital learning infrastructure. Limited formal educational resources mean residents often rely on informal networks, which may not fully compensate for the lack of structured learning.
2. **Monguno LGA**: Similar to Gujiba, the lack of formal digital education infrastructure and reliance on informal learning sources highlight significant barriers to digital literacy.
3. **Mobbar and Fika LGAs**: These areas also experience limited access to digital resources and learning opportunities, exacerbating the digital divide and limiting residents' ability to engage effectively with digital technologies.

In these hard-to-reach regions, the combination of inadequate formal education and reliance on shared or public resources creates a significant digital divide. The lack of consistent access to personal digital devices and limited opportunities for digital skills development contribute to a broader issue of digital exclusion, affecting socio-economic advancement and engagement with the digital economy.

Table 20: Summary Table Digital Device Access

Access Source	**Percentage**
Personal access	60.40%
A family member's computer/laptop	7.10%
A friend's computer/laptop	9.30%
Computer/laptop at the community digital hub	5.60%
Computer/laptop at the private cybercafé or digital hub	7.10%
Other	10.60%
Total	**100.00%**

Digital Literacy Learning Sources and Outcomes in Biu, Damaturu vs. Bade, Mafa LGAs
Digital literacy is a cornerstone for socio-economic development, especially in regions where access to technology can significantly enhance educational, professional, and economic opportunities.

In our assessment we look at the digital literacy landscape in two high-activity LGAs, Biu and Damaturu, with two low-activity or hard-to-reach LGAs, Bade and Mafa LGAs. The aim is to highlight the positive outcomes in areas with better infrastructure and community support while contrasting them with the challenges faced in regions with limited access to digital learning resources.

Positive Outcomes in Biu and Damaturu LGAs

1. **Biu LGA: A Model of Digital Literacy Advancement**

Robust Infrastructure: Biu's digital literacy landscape is characterized by a well-established network of digital learning resources. With active computer centers and strong participation from community secondary schools, Biu offers its residents multiple formal avenues to acquire digital skills. This infrastructure ensures that learning opportunities are accessible, leading to broader digital engagement.

Community Engagement: The high number of respondents who learned digital skills from friends and family at home (94 instances) reflects a strong community-driven approach to digital literacy. This informal network supplements formal education, ensuring that even those outside traditional learning environments have access to digital knowledge.

Positive Impact: The combination of robust infrastructure and active community participation positions Biu as a leader in digital literacy within the region. Residents are more likely to be digitally literate, which in turn enhances their ability to access digital services, participate in the digital economy, and improve their socio-economic status.

2. **Damaturu LGA: A Community-Driven Success**

Strength in Informal Learning: Despite having fewer formal digital learning centers compared to places like Maiduguri Damaturu excels in community-driven digital education. The overwhelming reliance on learning at home indicates that residents have built a strong culture of informal digital learning.

Community Resilience: The success in Damaturu can be attributed to the resilience and resourcefulness of its residents. In the absence of extensive infrastructure, the community has taken the lead in ensuring that digital skills are disseminated through personal networks. This has resulted in relatively high levels of digital literacy despite limited resources.

Positive Outcomes: The strong community-driven approach in Damaturu has led to a population that is largely digitally literate, capable of leveraging digital tools for personal and professional growth.

This resilience is a testament to the potential of informal learning networks in regions with limited infrastructure.

Challenges in Low-Access or Hard-to-Reach Areas: Bade and Mafa LGA

1. **Bade LGA: Struggling with Limited Resources**

Bade, though not as severely under-resourced as some regions, still faces challenges with limited digital learning infrastructure. With instances each of learning from community secondary schools and computer centers, Bade has some formal resources, but they are not as extensive or effective as in high-activity areas.

Limited Community Networks: Unlike Biu and Damaturu, Bade does not have as strong a community-driven approach to digital literacy. With only few instances of home-based learning, the reliance on informal networks is lower, suggesting that many residents may lack access to both formal and informal digital education.
Negative Impact: The moderate access to formal learning resources, combined with weaker community networks, results in lower overall digital literacy in Bade. Residents are less equipped to engage with digital services, which limits their opportunities for socio-economic advancement and hinders the LGA's overall development.

Gujiba LGA: Addressing Digital Literacy Gaps
Infrastructure Challenges Gujiba LGA faces notable challenges in digital literacy due to insufficient infrastructure. With few digital learning centers and limited participation from local schools in digital education programs, residents have restricted access to formal digital learning opportunities. This lack of infrastructure poses a significant hurdle to improving digital literacy in the area.

Community-Based Learning In response to the infrastructure limitations, Gujiba's residents often turn to community-based and informal learning networks for digital education. While these networks provide valuable support, they cannot fully replace the structured learning that formal education systems offer.

Moving Forward The situation in Gujiba LGA highlights the importance of enhancing digital infrastructure and formal educational resources to bridge the digital divide. With targeted interventions and support, there is potential to significantly improve digital literacy and inclusion in the community, enabling residents to better engage with the digital economy and modern educational opportunities.

Utilization and Digital Literacy in Borno, Yobe, and Hard-to-Reach Areas
Table 21: Utilization and Digital Literacy in Borno, Yobe, and Hard-to-Reach Areas

Category	Digital Products
Education	- Online Learning Platforms (e.g., Coursera, Udemy, Khan Academy)
	- Educational Apps (e.g., Google Classroom, Duolingo, MySchool.ng)
	- E-books and Digital Libraries (e.g., OkadaBooks, Worldreader)
Social	- Social Media Platforms (e.g., Facebook, Twitter, Instagram, TikTok)
	- Messaging Apps (e.g., WhatsApp, Telegram, Signal)
	- Video Sharing Platforms (e.g., YouTube, TikTok)
Commercial	- E-commerce Platforms (e.g., Jumia, Konga, PayPorte)
	- Online Payment Systems (e.g., Paystack, Flutterwave, Paga)
	- Classifieds and Online Marketplaces (e.g., OLX, Jiji)
Financial Services	- Digital Banking Apps (e.g., GTBank, FirstBank, Zenith Bank mobile apps)
	- Fintech Solutions (e.g., OPay, PalmPay, Kuda Bank)
	- Cryptocurrency Trading Platforms (e.g., Binance, Luno)

Entertainment	- Streaming Services (e.g., Netflix, Showmax, IrokoTV)
	- Music Platforms (e.g., Spotify, Apple Music, Boomplay)
	- Online Gaming (e.g., Bet9ja, NairaBET, mobile gaming apps)
Communication	- Email Services (e.g., Gmail, Yahoo Mail, Outlook)
	- Video Conferencing Tools (e.g., Zoom, Microsoft Teams, Google Meet)
	- VoIP Services (e.g., Skype, WhatsApp Voice Calls)
Health	- Telemedicine Platforms (e.g., Kangpe, Tremendoc, 54gene)
	- Health Apps (e.g., HealthPlus, MyPaddi, Omomi)
Government Services	- E-Government Portals (e.g., NIMC, CAC, FIRS)
	- Online Voting and Survey Platforms
Creativity & Arts	- Graphic Design Tools (e.g., Canva, Adobe Creative Cloud)
	- Digital Content Creation Platforms (e.g., WordPress, Medium, Substack)
Transportation	- Ride-Hailing Services (e.g., Borno express, young shall Grow)
	- Vehicle Sharing Platforms (e.g., Gokada, MAX.ng)
Productivity	- Office Suites (e.g., Microsoft Office 365, Google Workspace)
	- Project Management Tools (e.g., Trello, Asana, Slack)
Utility	- Power Management (e.g., Lumos, IHS Towers)
	- Weather and Navigation Apps (e.g., Google Maps, AccuWeather)

Source: Fatoa Field survey, July 2024

In Borno and Yobe States, and particularly in hard-to-reach areas such as Monguno, Gowza, and Gujiba LGAs, the utilization of digital products and the level of digital literacy exhibit significant disparities. The following discussion explores these differences in terms of product utilization and the state of digital literacy

Product Utilization
Borno and Yobe States:
Education: In urban centers like Maiduguri and Damaturu, digital learning platforms (e.g., MySchool.ng, Google Classroom) are increasingly used, supported by local educational institutions. However, in areas like Monguno and Gowza LGAs, access to such platforms is more limited, often constrained by infrastructure issues and intermittent internet access.

Social: Social media platforms (e.g., Facebook, Instagram) and messaging apps (e.g., WhatsApp) are widely used in Borno and Yobe. In contrast, usage in hard-to-reach areas like Monguno and Gujiba is less prevalent due to lower connectivity and limited access to smartphones.

Commercial: E-commerce platforms (e.g., Jumia, Konga etc) are accessible in Borno's urban centers, but less so in remote areas like Gowza and Gujiba. The infrastructure for online payment systems is present in cities but is underdeveloped in hard-to-reach regions.

Financial Services: Digital banking and fintech solutions are used extensively in urban areas. In contrast, access to these services is minimal in hard-to-reach areas due to limited banking infrastructure and lower internet penetration.

Entertainment: Streaming services (e.g., Netflix) and music platforms (e.g., Boomplay) are popular in urban areas such as Maiduguri but less accessible in remote areas where data costs and internet speeds are significant barriers. Hard-to-Reach Areas (Monguno, Gowza, Gujiba LGAs). They survey observed many youths in Maiduguri, Biu and Damature LGAs using the streaming services and music platforms. This is an area that needs more support because of its effects on creating job opportunities for the youths,

Education: In these regions, digital learning is often limited to informal methods. For instance, residents rely on community centers or makeshift learning setups, given the scarcity of formal digital learning resources. The survey noted limited usage of online learning platforms in higher institutions such as Universities, Polytechnics and Colleges of education in Borno and Yobe States. Greater percentage of respondents who are undergraduates from Maiduguri complained of the inability of the university to use virtual classes during the insurgency prevented them from attending classes online.

Social: In the hard-to-reach regions, social media and messaging apps are used but with lower frequency compared to urban centers. Access is hampered by inconsistent internet connectivity and limited digital devices.

Commercial: E-commerce is less developed in these areas. Limited access to formal commercial platforms means residents often rely on local markets and traditional trading methods.

Financial Services: In all the regions visited, POS is commonly used for financial transactions. Many confirmed the use of mobile money transfer where there are telecommunication network services. In hard to reach regions, Fintech solutions and digital banking are less utilized due to a lack of infrastructure and access. Many residents still rely on traditional banking methods with many lacking access to commercial banks due to the insurgency and distance to communities.

Entertainment: In hard to reach regions in Borno and Yobe, the use of streaming services and online games is minimal due to high data costs and slow internet speeds. Entertainment options are more traditional and offline.

Objective 3: Understanding Digital Gender Gap

Digital Gender Gap: The digital gender disparities between male and female revealed the level to access, use, and benefits from digital technologies. This gap persists in Borno and Yobe states, affecting various aspects of life including economic opportunities, education, and social participation.

The survey data clearly highlights gender disparity in access to technology, with significant differences in ownership of smartphones and other digital devices between men and women. Specifically:

Smartphone Ownership: The survey results reveal a clear gender disparity in access to digital devices:

Smartphone Ownership: Among the 391 female respondents, only 57.3% own smartphones, while 74.9% of the 601 male respondents' own smartphones. This indicates that approximately 7 out of 10 male respondents own a smartphone, reflecting a higher rate of smartphone ownership among men.

Computer/Laptop/Tablet Ownership: The disparity is more pronounced with computers, laptops, or tablets. Only 13.2% of the 391 female respondents own these devices, compared to 21.3% of the 601 male respondents.

This means that male are significantly more likely to have access to essential digital devices, which limits female's ability to engage with the digital world. Bridging this gap is essential for promoting equal opportunities in education, work, and access to information.

The data also points to a clear gender gap in access to technology, which is consistent with global trends. Women are often less likely to own or have access to digital devices compared to men. Various socio-economic and cultural factors further limit women's ability to own technology, placing them at a disadvantage in digital participation and economic opportunities. These findings align with global discussions, such as those in the *UN Women 2021* report, which emphasizes that women are disproportionately affected by limited access to mobile internet and digital devices.

Even when women have access to digital devices, they often face significant challenges in acquiring and developing digital skills. This gap in digital literacy stems from a combination of gender norms, socio-cultural expectations, and unequal educational opportunities.

Gender Norms and Expectations: In many communities, traditional gender roles place less emphasis on women and girls developing technical skills. Men are more often encouraged to engage with technology and digital tools, while women are pushed towards other responsibilities. This cultural expectation can limit women's confidence and exposure to digital training, even when they have access to devices.

Educational Disparities: In several parts of the world, including developing countries, women and girls often receive less formal education than their male counterparts.

According to the *UNESCO Global Education Monitoring Report (2022)*, girls are more likely to be excluded from digital learning environments, which results in lower levels of digital literacy. These educational disparities persist into adulthood, limiting women's ability to use digital devices effectively, access online resources, and participate in digital economies.

Limited Access to Training: Digital literacy programs, if available, are often more accessible to men due to barriers women face, such as time constraints, household responsibilities, or security concerns when traveling to learning centers. In places where there are fewer ICT centers, such as in hard-to-reach areas of Borno and Yobe (e.g., Gujiba, Mobbar, and Monguno LGAs), these barriers are even more pronounced. Women may not have the same opportunities to engage in structured learning, which reinforces the digital divide.

Economic Implications: The lack of digital skills has profound implications for women's economic empowerment. Without the ability to navigate the digital world, women are left behind in terms of job opportunities, online learning, and entrepreneurial activities. Many digital financial services and platforms remain inaccessible to women due to the skills gap, further excluding them from potential economic benefits.

Globally, this digital skills gap is recognized as a significant challenge to gender equality. The *International Telecommunication Union (ITU)* 2023 report stresses that women are not only less likely to own devices but also less likely to be proficient in their use, which creates a compounded disadvantage in an increasingly digital world. Closing the gap in digital literacy requires targeted efforts that focus on both increasing access and creating learning environments tailored to women's needs and contexts.

Internet Use and Online Participation: Women tend to use the internet differently than men, often focusing on social and community-building activities rather than business or technical uses. This variation in use can impact their economic opportunities and access to information.

Safety and Security: Women are more likely to face online harassment and security threats, which can deter their engagement with digital platforms.

International Perspectives and Citations
UN Women (2021): The "Progress of the World's Women 2019–2020" report highlights that woman are 26% less likely than men to use mobile internet, with the gap widening in developing regions. It underscores the need for targeted interventions to address barriers to digital access and literacy for women.

UN Women. (2021): Progress of the World's Women 2019–2020: Families in a Changing World. Link *ITU (2023)*: The "Measuring Digital Development: Facts and Figures 2023" report by the ITU provides data showing that the global digital gender gap remains

significant. Women are less likely to own smartphones and access the internet compared to men, especially in low-income countries.

ITU (2023). Measuring Digital Development: Facts and Figures 2023.
World Economic Forum (2023): The "Global Gender Gap Report 2023" emphasizes that the digital gender gap is a major factor contributing to the broader gender inequality in economic participation and opportunity. The report calls for enhanced policies to bridge this gap, particularly in education and technology access.

World Economic Forum. (2023). Global Gender Gap Report 2023.
UNESCO (2022): UNESCO's "Global Education Monitoring Report 2022" discusses how gender disparities in digital skills and access to technology contribute to the broader education gap between boys and girls. It emphasizes the need for gender-sensitive educational policies to improve digital literacy among girls.
UNESCO. (2022). Global Education Monitoring Report 2022: Gender and education.
Understanding the Perception of the Digital Gender Gap

A significant 58.7% of respondents within these communities acknowledge the presence of a digital gender gap. This gap is marked by disparities in access, usage, and benefits derived from digital technologies between men and women. However, 19.4% do not perceive such a gap, and 21.8% remain unsure, indicating varying levels of awareness and understanding across different segments of the population.

This variation in perception underscores a critical challenge: the digital gender gap is not merely a technical issue but one of awareness and societal recognition. The fact that over one-fifth of respondents are unsure suggests that efforts to raise awareness about gender disparities in digital access and usage are essential. This aligns with global findings that emphasize the importance of community engagement in recognizing and addressing digital inequalities.

Key Drivers of the Digital Gender Gap

Table 22: Drivers of Digital Gender Divide

Drivers of Digital Gender Divide	**%** of respondents
Cultural Norms and Gender Roles	39%
Lack of Digital Literacy Among Women	30%
Financial Constraints	20%
Safety and Security Concerns	11%

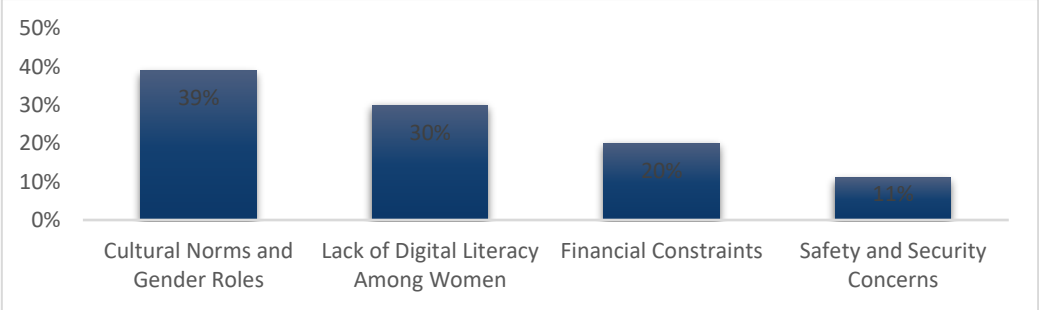

Figure 14: Drivers of Digital Gender Divide

Cultural Norms and Gender Roles:

The most frequently cited reason for the digital gender gap, identified by 39% of respondents, is entrenched cultural norms and gender roles. These societal expectations dictate what is considered appropriate behavior for men and women, often restricting women's access to education, technology, and economic opportunities. This finding is consistent with broader studies, which highlight the pervasive influence of cultural norms in limiting women's participation in the digital economy.

Lack of Digital Literacy Among Young Women:

Lack of digital literacy among women emerges as a significant barrier to gender gap. A National Bureau of Statistics youth survey report states that young males in Nigeria are about twice as likely as women to pursue careers in computer science and related professions. The National Bureau of Statistics reports that in Nigeria, women account for an average of only 22% of all engineering and technology university graduates annually[16]. Regarding the information and communication technology sector, women comprise approximately 25% of the workforce, as per the same source. The gender gap in technology and engineering courses in Nigerian universities began far earlier, with fewer women than males enrolled in these programs. It follows that whereas women are primarily passive users of technology, men are creating it.

Taking University of Maiduguri as a case study, only about 35% of the students studying computer science are females, while only about 20% of the students studying computer engineering are females. This situation is also applicable to both state universities in Borno and Yobe states.

Furthermore, taking university of Maiduguri as a case study only four (4) female lecturers in computer engineering in a total of twenty-one (21) academic staffs in the department constituting only 19% of the total academic staffs in the department. On the other hand, in computer science department which is nevertheless a newer department compared to computer engineering with a staff strength of fifteen (15) academic staffs there is no female academic staff presently.

Without the necessary skills to navigate digital environments, young women are less likely to access the benefits of technology, further widening the gap. This observation

[16] https://wteconline.org/the-gender-gap/

reflects global trends where digital literacy programs are often underfunded or inaccessible, particularly for women in rural or low-income settings.

Financial Constraints:
Economic limitations were identified by 20% of respondents as a contributing factor to the digital gender gap. The high cost of digital devices and internet access can place them out of reach for many women, particularly those from low-income households. This economic barrier is a recurring theme in discussions about digital inclusion, where affordability remains a significant hurdle for equitable access.

Safety and Security Concerns:
About 11% of respondents pointed to safety and security concerns as reasons for the gender gap. Fears of online harassment, privacy breaches, and cyberbullying can deter women from engaging in digital spaces. These concerns are well-documented in global research, which emphasizes the need for creating safer online environments to encourage greater participation by women.

Community Opinions on Addressing the Digital Gender Divide
In our recent assessment, community members voiced various opinions on how the digital gender divide can be effectively addressed. Their suggestions highlight a strong understanding of the barriers faced by women and offer practical interventions to promote digital inclusion.
The opinions and interventions suggested by community members align closely with national and international findings on the digital gender divide. Several global studies have pointed out similar challenges and solutions, reinforcing the need for a multi-faceted approach to address the issue.

The following interventions were frequently proposed:

1. **Community Awareness Campaigns (33%)**

The majority of community members emphasized the importance of raising awareness about the digital gender gap. They believe that gender stereotypes and cultural norms continue to play a significant role in restricting women's access to technology. By educating families and communities, campaigns can challenge these norms and shift perceptions about women's role in the digital space.
One community leader in Mafa noted, "If people can understand the opportunities that technology offers for women, from online education to business opportunities, then there will be more support for women's access to digital devices."
This finding mirrors conclusions from global reports, such as UN Women's "Gender Equality in Digital Access and Use", which emphasizes that social and cultural norms are significant barriers to digital inclusion for women.
These campaigns can also help break down myths about women's ability to engage with technology, and encourage both men and women to participate in the digital economy research by GSMA's Mobile Gender Gap Report 2022 supports this, stating that in many countries, "social norms and safety concerns remain significant barriers to mobile

ownership and internet use for women" (*GSMA, 2022*). These campaigns are essential in reshaping these norms and increasing digital adoption among women. fostering a more supportive environment, community awareness efforts can lead to more equitable digital inclusion.

2. **Digital Literacy Programs for Women (30%)**

A significant proportion of community members (30%) recommended targeted digital literacy programs for women as a crucial step to bridging the gender gap. While some women have access to devices, they often lack the necessary skills to use them effectively. These programs could offer training on basic digital skills, financial literacy, and e-commerce, enabling women to fully benefit from the digital economy.

One respondent from Jere highlighted, "Many women in our community don't know how to use smartphones beyond making calls. If there are training programs, they can learn how to do business online and even study from home."

By equipping women with the skills needed to navigate the digital world, these programs would empower them to use technology not only for personal communication but also for education, entrepreneurship, and financial independence.

3. **Subsidized Smartphones and Data Plans (20%)**

Another key suggestion was the provision of subsidized smartphones and data plans. With only 57.3% of women in the survey owning smartphones, affordability remains a critical barrier to access. Community members argued that financial constraints often prevent women, especially in rural and hard-to-reach areas, from purchasing digital devices or affording data plans.

A mother from Mobbar shared, "Many women can't afford smartphones or data. Even if they want to learn digital skills, the costs keep them from participating fully."

Offering subsidies or financial support for smartphones and data plans could enable more women to gain access to digital resources. This, in turn, would enhance their ability to communicate, learn, and engage in digital marketplaces.

4. **Safe Spaces for Women to Access Digital Services (17%)**

Lastly, safe spaces for women to access digital services was suggested by 17% of respondents. Many women, particularly in conservative and rural areas, face restrictions on their mobility and concerns about safety when accessing public internet cafes or ICT centers. By creating women-only digital hubs or safe spaces, communities can provide a secure environment where women feel comfortable learning and using digital devices.
A respondent from Monguno suggested, "If we have spaces where women can go without fear of judgment or harassment, more women will be encouraged to learn how to use technology."

These safe spaces could offer not only access to devices and the internet but also serve as training centers where women can build their digital skills in a supportive, gender-sensitive environment.

Table 23: Proposed Interventions

Proposed Interventions	Percentage (%)
Community Awareness Campaigns	33%
Digital Literacy Programs for Women	30%
Subsidized Smartphones and Data Plans	20%
Safe Spaces for Women to Access Digital Services	17%
Total	**100**

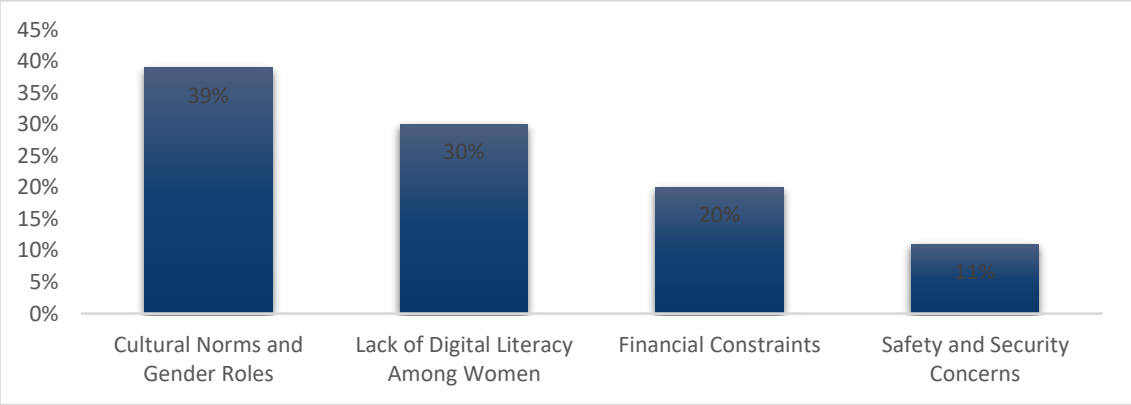

Figure 15: Proposed Interventions

Cumulative Insights

The responses indicate a clear preference for multifaceted approaches that combine awareness, education, financial support, and safe environments to address the digital gender gap. There is a strong consensus that awareness and educational interventions are foundational, but they must be supplemented by financial and infrastructural support to be effective. These findings resonate with global strategies that advocate for comprehensive, context-sensitive approaches to digital inclusion.

The community's views, as reflected in this analysis, emphasize the importance of addressing both the tangible and intangible barriers to digital access for women. By tackling cultural norms, enhancing digital literacy, providing financial support, and ensuring safety, these interventions can collectively bridge the digital gender gap and foster a more inclusive digital environment.

Objective 4: Assessing Policy Domestication

Before diving into detailed policy discussions, it's important to first understand the existing national digital policies and strategies driving digital economy. These frameworks shape how the country approaches digital transformation, addressing key areas like infrastructure, innovation, regulation, and digital inclusion. By having a clear understanding of these policies and strategies, we can better assess their impact and identify opportunities for growth and improvement in the digital space

The National Digital Economy Policy and Strategy (NDEPS) of Nigeria was introduced by the Ministry of Communications and Digital Economy in 2019. It aims to guide Nigeria's transformation into a leading digital economy, aligning with global trends and promoting economic growth, job creation, and improved digital services. The strategy focuses on leveraging digital technologies to diversify the economy, reduce poverty, and foster innovation.

Key Pillars of Nigeria's National Digital Economy Strategy:

Developmental Regulation:

Focuses on creating an enabling environment through regulatory frameworks that support innovation, ensure fair competition, protect consumers, and foster digital inclusion.

Digital Literacy and Skills:

Aims to equip Nigerians with the necessary skills to participate in the digital economy. It includes educational reforms and capacity-building initiatives to boost digital literacy across all segments of society, especially women, youth, and people with disabilities.

Solid Infrastructure:

The strategy emphasizes the development of robust and secure digital infrastructure, including broadband expansion, to support digital services in urban and rural areas alike.

Service Infrastructure:

This pillar is about strengthening digital platforms that provide public services, including e-government and digital financial services, to enhance transparency, efficiency, and inclusiveness.

Digital Services Development and Promotion:

Encourages the development of digital services in various sectors like agriculture, healthcare, education, and commerce to drive innovation and improve productivity.

Soft Infrastructure:

Encompasses the establishment of governance frameworks, cybersecurity, data protection, and privacy laws to foster trust in digital systems.

Digital Society and Emerging Technologies:

Promotes the adoption of emerging technologies like Artificial Intelligence (AI), Blockchain, and Internet of Things (IoT) to enhance Nigeria's competitiveness in the global digital economy.

Indigenous Content Development and Adoption:
Focuses on the promotion of local digital innovations and content creation, encouraging the use of indigenous digital products and services to strengthen local businesses and reduce reliance on foreign technology.

Available National Digital Economy Strategies:
National Broadband Plan (2020-2025):
Targets to achieve at least 90% broadband penetration by 2025, with a focus on ensuring affordable and reliable internet access for both urban and rural areas.

National Digital Innovation and Entrepreneurship Policy:
Aims to foster innovation ecosystems and support the growth of tech startups and SMEs by providing them with access to digital tools, mentorship, and investment opportunities.

National Data Protection Regulation (NDPR):
Focuses on protecting personal data and ensuring the responsible use of data in Nigeria's digital economy, aligning with global data privacy standards like GDPR.

Nigeria Startup Act (2022):
Enacted to create an enabling environment for startups to thrive by providing tax incentives, access to funding, and simplified regulatory processes for innovative digital enterprises.

National Financial Inclusion Strategy (Revised 2022):
Aims to increase the number of financially included Nigerians through digital financial services, especially among underserved groups like women, rural populations, and small businesses.

National Artificial Intelligence and Robotics Framework:
A policy framework to promote the responsible adoption and development of AI and robotics in Nigeria, aimed at improving efficiency and fostering innovation in sectors like healthcare, education, and agriculture.

These strategies collectively serve to boost Nigeria’s digital economy, addressing challenges such as digital literacy, infrastructure gaps, and the digital divide, particularly in underserved communities and hard-to-reach areas.
National Digital Policies in Nigeria, including NITDA, the Three Million Technical Talent (3MTT) initiative, and the National Digital Literacy Policy.

National Information Technology Development Agency (NITDA) Policy

The National Information Technology Development Agency (NITDA) is the federal agency responsible for overseeing the development, regulation, and implementation of IT policies in Nigeria. Established in 2001 under the NITDA Act, the agency serves as a regulatory body guiding the country's digital transformation. Its focus is on creating an enabling environment for the adoption and use of IT across various sectors of the economy, with the aim of promoting innovation, ensuring digital inclusion, and enhancing Nigeria's global competitiveness in technology.

Key Objectives and Initiatives of NITDA:

IT Infrastructure Development: NITDA ensures the availability and accessibility of critical IT infrastructure across Nigeria, especially in underserved and rural areas. This is part of the agency's effort to bridge the digital divide and increase internet penetration.

Regulatory Standards and IT Governance: NITDA sets regulatory standards for IT practices, ensuring data privacy, cybersecurity, and digital rights protection. A major policy under NITDA is the Nigeria Data Protection Regulation (NDPR), which ensures the privacy and protection of citizens' data in compliance with global standards like GDPR. The NDPR is pivotal in fostering trust and confidence in Nigeria's growing digital economy.

Digital Inclusion and Capacity Building: One of NITDA's core missions is promoting digital inclusion by providing access to digital skills and technologies, especially for marginalized communities such as women, youth, and people with disabilities. Through initiatives like Digital States and Digital Skills for Jobs, NITDA partners with local governments and educational institutions to boost digital literacy.

E-Government Services: NITDA spearheads the development of e-governance platforms to enhance the transparency and efficiency of government services. By digitizing public service delivery, the agency aims to reduce bureaucratic delays and foster greater citizen engagement through platforms like the Government Service Portal (GSP) and Nigeria e-Government Master Plan.

Impact:

NITDA's policies have been instrumental in driving Nigeria's IT revolution. For example, by setting up IT Innovation Hubs across the country, the agency supports tech startups, entrepreneurs, and research initiatives, which has led to the rise of a vibrant tech ecosystem in cities like Lagos and Abuja. Furthermore, the agency's work in ensuring compliance with the NDPR has enhanced Nigeria's standing in global data protection rankings.

Three Million Technical Talent (3MTT) Initiative

The Three Million Technical Talent (3MTT) Initiative was launched to address the growing global demand for digital and technical skills. Recognizing the need to position Nigeria as a hub for technology and innovation, this initiative aims to train three million

Nigerians in high-demand tech skills by 2025. This policy is vital for nurturing a workforce that can compete in the global digital economy and support the local tech industry.

Key Focus Areas:
Skill Development in Emerging Technologies: The 3MTT initiative focuses on developing competencies in areas such as software engineering, artificial intelligence (AI), data science, cloud computing, and cybersecurity. These skills are highly sought after in both the global and domestic job markets.

Hands-on Training and Certification: Training under this initiative is designed to be practical, industry-driven, and aligned with international standards. Certification programs are conducted in collaboration with international tech giants like Microsoft, Google, and Cisco, ensuring that Nigerian tech professionals can compete at a global level.
Inclusion of Youth and Underrepresented Groups: The initiative specifically targets youth, women, and people from underserved communities, ensuring that the benefits of the digital economy reach all segments of society. By providing scholarships and access to digital tools, 3MTT aims to remove barriers to entry into the tech workforce.

Impact:
The 3MTT initiative is expected to significantly reduce the skills gap in Nigeria's tech industry. By 2025, it is projected that this initiative will increase the number of locally trained tech professionals, boosting employment and entrepreneurship in the sector. In the global context, Nigeria is positioning itself as a talent hub for international companies seeking tech professionals.

National Digital Literacy Policy
The National Digital Literacy Policy focuses on building digital literacy across all sectors of the Nigerian society, with the goal of ensuring that citizens are equipped to participate meaningfully in the digital economy. This policy is key to achieving the broader objectives of digital inclusion and bridging the skills gap that often leaves rural and marginalized populations behind.

Key Objectives:
Promoting Digital Literacy for All: The policy aims to ensure that digital literacy is accessible to all citizens, regardless of age, gender, or socio-economic background. This involves integrating digital literacy into formal and informal education systems to ensure that both children and adults can acquire these essential skills.
Enhancing Educational Curricula: A major component of the policy is the inclusion of digital literacy as part of the national educational curriculum. By introducing students to ICT skills early on, the policy ensures that the next generation of Nigerians will be equipped to navigate and succeed in the digital world.

Training Programs and Digital Literacy Centers: Through partnerships with local governments, private sector organizations, and international development agencies, Nigeria has established digital literacy centers in underserved areas. These centers offer training in basic ICT skills such as word processing, internet navigation, and the use of digital devices, with a special emphasis on women, youth, and individuals with disabilities.

Promoting Indigenous Digital Content: The policy encourages the development of locally relevant digital content to ensure that citizens can access information and services in their native languages. This helps bridge cultural and language barriers, making digital resources more accessible to rural communities.

Impact:
The National Digital Literacy Policy has significantly increased access to digital education across Nigeria. Through initiatives like the National Youth Service Corps (NYSC) Digital Literacy Program and the Digital Skills for All Initiative, millions of Nigerians have been introduced to digital technologies. This policy is crucial for fostering a more inclusive digital economy, where every citizen has the opportunity to participate, regardless of their background.

Broader Context and National Alignment
These policies, alongside Nigeria's National Digital Economy Policy and Strategy (NDEPS), reflect a unified approach towards achieving the nation's digital transformation goals. With an emphasis on digital literacy, technical skills development, and IT governance, Nigeria is creating a framework that not only prepares the country for the digital age but also fosters innovation, job creation, and sustainable development.
Each policy is designed to address specific challenges within Nigeria's digital ecosystem. For instance, the 3MTT initiative seeks to mitigate the tech skills gap, while the NITDA policy ensures proper regulatory oversight and infrastructure development. Together, these policies are essential to creating an enabling environment for Nigeria's burgeoning digital economy.

State Level Policy
State-level digital policies in Nigeria, like the Borno State Information and Communication Technology Development Agency (BICTDA) and the Yobe Information Technology Development Agency (YITDA), are critical frameworks for driving digital transformation at the regional level. These state-specific policies align with national digital strategies, such as the National Information Technology Development Agency (NITDA) policies, but are tailored to address the unique needs and challenges of their respective states.
Borno State Information and Communication Technology Development Agency (BICTDA): BICTDA is the key body driving the state's ICT policies and digital development. Established in response to the state's growing need for technology-driven

development, BICTDA aims to bridge the digital divide within the state, which faces challenges like conflict, displacement, and underdevelopment.

Key Focus Areas:
ICT Infrastructure Development: BICTDA focuses on building ICT infrastructure, especially in hard-to-reach and conflict-affected areas. This includes improving internet connectivity and access to technology in urban centers like Maiduguri, as well as rural regions.

Digital Literacy and Skills Development: BICTDA places a strong emphasis on digital literacy as a means to empower the youth and provide new opportunities for economic growth. It runs programs that train people, including women and displaced persons, in basic ICT skills to help them access the digital economy.
E-Government Services: BICTDA is also responsible for enabling the digitization of government services in Borno State. Through initiatives such as e-governance platforms, the agency promotes transparency, efficiency, and citizen engagement. This is particularly important in regions affected by conflict, where access to public services can be a challenge.

Collaboration and Partnerships: The agency actively seeks to collaborate with national bodies like NITDA and private sector stakeholders to attract investment in technology, promote innovation hubs, and create job opportunities within the digital economy.

Challenges and Impact:
Due to the ongoing conflict in Borno, particularly with the insurgency, BICTDA faces unique challenges in deploying ICT infrastructure across the state. Despite these barriers, the agency has made strides in expanding digital literacy, particularly among internally displaced persons (IDPs) and youths, to provide them with essential skills for socio-economic integration.

Yobe Information Technology Development Agency (YITDA)
YITDA, like its counterpart in Borno, is responsible for driving the state's digital transformation. Yobe, located in the North-East, also grapples with conflict, underdevelopment, and educational disparities, which YITDA aims to address through the promotion of ICT.

Key Focus Areas:
ICT Development and Innovation: YITDA works to boost ICT infrastructure and development in the state, ensuring that internet services and digital platforms are accessible across Yobe. The agency is particularly focused on expanding broadband connectivity in urban centers like Damaturu, as well as rural and underserved areas.

Digital Literacy Programs: One of the key pillars of YITDA's strategy is fostering digital literacy. The agency works with educational institutions and community centers to offer

ICT training and workshops, especially targeting youths, women, and persons with disabilities. By integrating digital education into formal school curricula and informal settings, YITDA seeks to close the gap in digital skills and prepare the next generation for a technology-driven economy.

E-Governance: YITDA is spearheading efforts to digitize government operations and service delivery within Yobe State. By creating e-governance platforms, the agency aims to make public services more efficient, transparent, and accessible to the local population. This includes digitizing processes like land registration, healthcare information management, and access to social services.

Private Sector and Investment Opportunities: YITDA is also actively working to attract investment in the tech sector, fostering partnerships with private tech companies, international organizations, and NGOs to promote ICT development in Yobe. This includes the establishment of tech hubs and innovation centers to nurture local tech talent and entrepreneurship.

Local Government Policies and Initiatives

Bade LGA:

Collaboration with *African Development Bank (AfDB)*: Bade LGA's partnership with AfDB to focus on digital infrastructure and literacy is a strategic move that highlights the importance of external funding and expertise in driving digital transformation. The collaboration aims to build the foundational infrastructure needed for digital services and equip the local population with the skills necessary to use these services effectively. The success of this initiative will depend on the continuity of funding, the quality of implementation, and the extent to which local leaders can engage the community.

Jakusko LGA:

Digital Literacy and Awareness: Jakusko LGA's efforts to raise awareness and promote digital literacy are critical, especially in regions where digital adoption is low. Public campaigns and collaboration with stakeholders can help demystify technology, making it more accessible to the general population.

However, the effectiveness of these campaigns will hinge on the methods used to reach different demographic groups, particularly those who may be digitally excluded, such as the elderly or people with disabilities.

Digital Infrastructure Security and Access: Ensuring secure and accessible digital systems is a fundamental aspect of Jakusko LGAs strategy. Security is paramount in building trust in digital systems, especially in regions where cyber threats or data privacy concerns may be significant barriers to adoption.

Access to infrastructure is equally important, as it determines the reach and usability of digital services. Overcoming challenges such as inadequate internet connectivity, lack of electricity, and insufficient digital devices will be crucial for the success of this initiative.

Challenges and Impact:
Yobe, like Borno, faces significant security and infrastructural challenges, which have hindered rapid ICT development. However, YITDA's efforts in expanding digital literacy and ICT infrastructure have had a noticeable impact, especially in empowering youth and providing alternative livelihood options through tech training. By focusing on both ICT innovation and education, YITDA is positioning Yobe to benefit from the digital economy, despite its regional challenges.

Overall Significance of State-Level Digital Policies
The establishment of BICTDA and YITDA reflects the growing importance of state-level involvement in digital transformation efforts. While Nigeria's national digital policies set the broader framework, state agencies like these can tailor their initiatives to meet the unique needs of their local populations. This localized approach is critical in regions like the North-East, where conflict, displacement, and limited access to services present unique obstacles to digital development.

These state agencies contribute to:

a) Promoting digital literacy in areas where formal education has been disrupted.
b) Building ICT infrastructure in underserved communities, connecting rural areas to the broader digital economy.
c) Fostering public-private partnerships to drive innovation and investment in technology.
d) Supporting job creation through digital skills training and tech entrepreneurship.

The digital policies implemented by BICTDA and YITDA align with national goals, such as those outlined by NITDA, but with a focus on the specific socio-economic and security challenges faced by their states. These efforts not only aim to bridge the digital divide but also help to foster resilience, reduce poverty, and offer new opportunities for economic growth and development.

Awareness of Policies:
Field Engagement and Policy Implementation:
Table 24: Awareness of Policies

Response	Percent
No	67.10%
Yes	32.90%

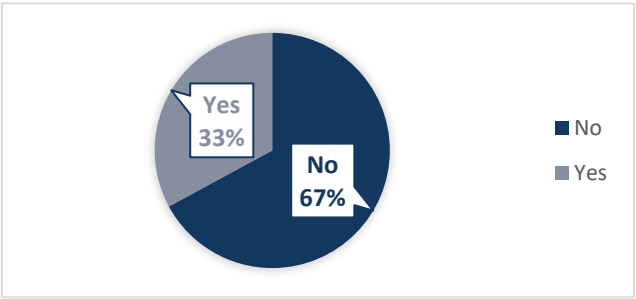

Figure 16: Awareness of Policies

To deepen understanding of the policy landscape, we took the initiative to go into the field and engage directly with community members. The goal was to assess the level of awareness and observe the implementation of digital transformation policies on the ground. This fieldwork provided valuable insights into how these policies are being perceived and whether they are translating into tangible benefits for the local population.

Policy Implementation: During these engagements, it became clear that the level of implementation varies significantly between regions. In some areas, digital transformation policies have been well-received and are beginning to make an impact.

However, in remote or conflict-affected areas, the implementation is far less visible, and the policies are often not reaching the intended beneficiaries. This shows the need for localized strategies and stronger policy enforcement mechanisms to ensure that digital transformation reaches all communities, not just those in urban centers.

Lack of Awareness (67.1%):
Majority of Respondents Unaware: Out of 992 number of respondents, 665 making up 67.1% of the respondents indicated that they were not aware of any state or LGA-level digital transformation policies in their area. This highlights a serious gap in communication or dissemination of these policies. It may suggest that despite efforts being made by state governments or LGAs to promote digital initiatives, these efforts are not reaching the majority of the population.

Barriers to Awareness: The lack of awareness could be attributed to several factors such as poor digital infrastructure, low digital literacy levels, or the absence of proper communication channels. In regions like Borno and Yobe, security challenges, limited access to technology, and socio-economic barriers could further hinder the population's awareness of these initiatives.

Awareness (32.9%):
Minority Awareness: From the total number of respondents only 32.9% of indicated that they are aware of digital transformation policies at the state or LGA level.

This designates that only a small proportion of the population are informed, which could include those living in urban areas or those with access to better communication channels and higher levels of digital literacy.

Potential Engagement: The fact that nearly one-third of the population is aware of these policies is a positive sign, as this segment may be engaging with or benefiting from digital initiatives. It also suggests that there are opportunities to scale up awareness campaigns and ensure broader participation in these digital programs, particularly in areas that are underrepresented.

Geographical Disparities:
The data also reflect geographical disparity, where urban centers like Maiduguri or Damaturu have higher awareness due to better access to technology, while rural or conflict-affected areas like Mafa or Mobbar LGAs remain less informed. This mirrors existing challenges in implementing digital transformation in underserved and hard-to-reach regions, where infrastructure and security issues can prevent the flow of information.

Table 25: Geographical Disparities

LGA	Percentage Aware	Percentage Not Aware
Maiduguri	50.60%	49.40%
Mafa	37.10%	62.90%

The fact that nearly one-third of the total population is aware of these policies is a positive sign because it indicates a foundational level of understanding and acceptance. This existing awareness serves as a critical platform for further outreach efforts. Specifically:

Basis for Scaling Up: The initial awareness provides a starting point from which governments and organizations can expand their campaigns. With a significant portion of the population already informed, targeted efforts can build on this base to reach those who are less aware, thereby increasing overall engagement.

Opportunities for Targeted Campaigns: The existing awareness allows for more strategic and efficient use of resources in campaigns. By focusing on regions or demographics with lower awareness, stakeholders can tailor their outreach to address specific gaps, ensuring that efforts are directed where they are most needed.

Foundation for Broader Participation: Recognizing that one-third of the population is already informed about these policies means that there is a willing and receptive audience. This foundation can be leveraged to encourage broader participation and support for digital programs, particularly in underserved or remote areas where the need for awareness and engagement is more pressing.

Positive Indicator of Policy Reception: The level of awareness suggests that the policies have begun to resonate with a segment of the population. This initial acceptance can be built upon to enhance understanding and involvement, furthering the policies' impact and effectiveness.

The current level of awareness is an encouraging sign that there is an existing foundation upon which to build more extensive and inclusive digital campaigns. It highlights an opportunity to enhance participation and ensure that digital transformation efforts reach all segments of society, particularly those who are currently underserved.

Perception of Policy Implementation

Perceived Effectiveness of Policies (32.9%):

Table 26: Perceived Effectiveness of Policies

Response	Percent (%)
Not Aware of Policy	67.1
Effectively	10.6
Ineffectively	1.5
Neutral	7.7
Very Effectively	12.8
Very Ineffectively	0.3
Total	**100**

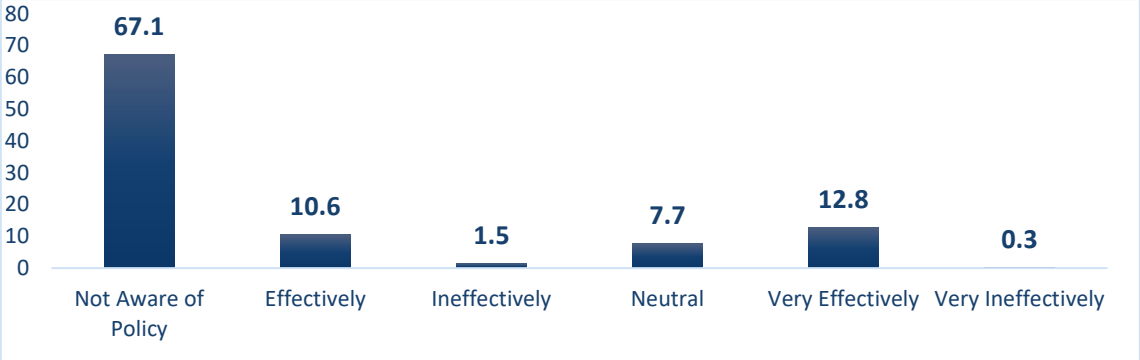

Figure 16: Perceived Effectiveness of Policies

A total number of 327 out of the 992 number of respondents indicating 32.9% (respondents) are aware of the policies, the data reveals further distinctions in their perceptions of policy effectiveness.

Effectively Implemented (10.6%): Out of the 327 who indicated awareness only (10.6%) feel the policies are being implemented effectively. This suggests that while policies may be in place, there are numerous challenges in their execution.

Possible reasons for this low perception of effectiveness could include:
Poor infrastructure: In rural areas, the absence of basic infrastructure (electricity, internet connectivity) may limit the reach and success of digital policies, making implementation difficult.

Bureaucratic bottlenecks: In some cases, even if policies are well-intentioned, they may face delays or mismanagement in execution, resulting in limited real-world impact.
Misalignment with community needs: Policies designed at the national level may not always align with the specific needs of local communities, reducing their perceived relevance and effectiveness.

Very Effectively Implemented (12.8%): Interestingly, a higher percentage of respondents (12.8%) consider the policies to be implemented very effectively, this group reflects

those in urban centers or more connected areas, where policies have had visible positive outcomes.
For example, urban regions like Maiduguri and Damaturu have better access to digital infrastructure and government services, leading to a more favorable perception of policy implementation. This could include successful programs related to digital literacy, financial inclusion, or healthcare services like telemedicine.

Neutral (7.7%): A moderate percentage (7.7%) of respondents are neutral, indicating that they either have limited direct experience with the policies or feel indifferent towards their impact. This group could represent a mixture of individuals who have seen some benefits but remain unconvinced, as well as those who have not yet been significantly affected by the policies.

This neutrality can also suggest a general lack of engagement or information, where respondents do not have enough exposure to either endorse or criticize the policies. This group presents an opportunity for future outreach and engagement strategies to increase understanding and involvement.

Ineffective Implementation (1.5%): A relatively small group (1.5%) views the policies as ineffective. While this percentage is small, it is important to note that dissatisfaction could be underreported, as people who are most negatively impacted by poor policy implementation (e.g., those in remote or marginalized communities) may not always have the resources or platforms to voice their discontent.

For example, areas like Mafa with only one active ICT center may struggle to see the benefits of digital policies, contributing to the perception of ineffectiveness.
Very Ineffective (0.3%): An even smaller fraction (0.3%) believes the policies are being implemented very ineffectively. While this is an encouragingly low number, it may not fully reflect the experiences of people in the most underserved areas, as their voices are often harder to capture in surveys.

The 67.1% who are unaware of the policies represent a major challenge for policymakers. This demonstrates a crucial need to improve public communication and engagement, particularly in hard-to-reach areas like Monguno, Mobbar, or Gujiba LGA where the lack of access to information exacerbates existing inequalities.
Among the 32.9% who are aware, the split between effectiveness and ineffectiveness highlights both the successes and the gaps in policy implementation. Urban areas and connected communities seem to benefit more, while rural and marginalized groups are left behind.

To improve overall policy effectiveness, a focus on regional disparities, infrastructure development, and inclusivity in outreach is essential. CPPPs and telecommunication companies will play a pivotal role in scaling successful models, particularly in enhancing digital services and addressing socio-cultural barriers.

Observed Localized Action Plans or Initiatives

According to our respondents, this is their feedback and how these initiatives can improve perceptions and yield positive results.

The findings highlight several critical areas for action to drive digital transformation at the local level, particularly in underrepresented or hard-to-reach regions. Here is a synthesis of the main points:

Community Training Programs and Public Awareness Campaigns

Community engagement through training programs and awareness campaigns is frequently observed. These initiatives focus on equipping individuals with digital literacy skills and raising awareness of the opportunity's digital services present. By targeting communities with little to no exposure to digital technologies, these programs aim to empower individuals with the tools and understanding needed for active digital engagement.

Impact: These programs lay the foundation for broader digital inclusion by fostering a culture of curiosity and competency in digital services.

Challenges: The absence of physical infrastructure and financial incentives may hinder the successful application of this newfound digital knowledge.

Infrastructure Development and Financial Incentives

The data shows a concerning lack of infrastructure development and financial incentive initiatives. Digital infrastructure—such as internet access, electricity, and digital devices—serves as the backbone for any digital transformation, while financial incentives can encourage adoption, particularly in low-income communities.

Implications: Without a robust infrastructure, training and awareness efforts may be rendered ineffective. Limited financial incentives might prevent widespread adoption of digital services, particularly for marginalized or economically disadvantaged groups.

Recommendations: There is a clear need for integrated projects that pair digital literacy programs with tangible improvements in infrastructure and access to affordable digital devices.

Combining Initiatives for Synergy

A notable finding is that most observed efforts combine community training programs and public awareness campaigns, which are complementary in nature. Awareness campaigns can generate interest, while training programs equip people with the skills to leverage digital services.

Missed Opportunity: More comprehensive initiatives that combine these with infrastructure projects and financial incentives are less common. An integrated approach that addresses both digital literacy and the physical means to access services could result in more sustainable and impactful outcomes.

Localized Action Plans and Public-Private Partnerships (PPPs)
Many respondents identified community engagement and feedback mechanisms as critical elements of digital transformation. Enhanced policy implementation and monitoring were also cited as areas needing attention, alongside the call for increased funding for digital infrastructure and more public-private partnerships.

Public-Private Partnerships: By aligning the expertise and resources of both sectors, PPPs can address both funding and innovation gaps. These partnerships should be designed to foster local capacity, particularly in underserved areas, and should be aligned with specific community needs.

Policy Monitoring: Effective monitoring and feedback loops are essential to ensure that policies are both relevant and impactful over time. Without community feedback mechanisms, initiatives risk being misaligned with the needs of local populations.

Barriers to Inclusion
Despite the existence of community programs, there is an absence of visible efforts toward infrastructure development and financial support, which are essential for digital transformation. Without these components, people may remain excluded from the digital economy, limiting the success of any digital literacy programs or public awareness campaigns.

Innovative Approaches: The lack of 'other' innovative methods to promote digital services suggests that traditional categories dominate the landscape. Exploring unconventional approaches tailored to the specific challenges of local communities—such as targeted programs for women, youth, or people with disabilities—could accelerate the digital transformation process.

Localized Impact and Specific Needs
The data supports the notion that localized efforts—such as feedback mechanisms and community engagement programs—are vital to tailoring digital initiatives to the specific needs of communities, especially in hard-to-reach areas like Monguno, Gujba, and Mafa LGAs. These regions suffer from limited digital infrastructure and financial incentives, which are essential for scaling digital inclusion efforts.

Recommendations for a Holistic Approach
A truly comprehensive digital transformation strategy must involve a mix of the following:

1. Community Engagement and Training: Ensuring that communities understand and are skilled in using digital services.
2. Robust Infrastructure Development: Providing the technological backbone necessary to support widespread digital access.
3. Financial Incentives: Encouraging adoption by addressing affordability barriers.

4. Public-Private Partnerships: Leveraging resources, expertise, and innovation to close infrastructure and service gaps.

By integrating these elements into a cohesive strategy, LGAs and states can ensure that digital services are accessible, affordable, and effective in driving long-term economic and social development.

Notable Observations

Challenges:

The primary challenge across various regions is the poor implementation of digital transformation policies, often due to limited resources, lack of political will, and insufficient awareness among the public and officials. This issue is particularly acute in states or local governments where the infrastructure is underdeveloped, and where there is a lack of capacity to manage and maintain digital projects.

Public Awareness:

Public awareness is a critical factor in the success of digital transformation initiatives. Many regions struggle with low levels of awareness about existing digital policies and initiatives, which can lead to underutilization of available resources. Without effective communication and outreach, even the most well-designed policies can fail to achieve their intended impact. Tailoring awareness campaigns to local contexts, using local languages and culturally relevant messages, can help bridge this gap.

Local Innovations:

Despite the challenges, there are pockets of innovation at the local level, such as the establishment of computer centers and the digitization of records. These efforts, however, are not uniformly distributed, and their benefits are often limited by a lack of publicity and support. Local innovations are critical for addressing specific community needs and can serve as models for broader implementation if adequately supported and scaled.

Effectiveness of Policy Implementation

Overall Sentiments:

The effectiveness of digital transformation policies varies widely across regions, with some areas reporting significant progress due to strong local leadership and community engagement, while others lag due to systemic issues. Effective implementation often correlates with active participation from local leaders who champion the policies and ensure that resources are allocated appropriately.

Mixed Results:

The mixed results in policy implementation highlight the disparities between regions. While some areas benefit from well-established digital infrastructure and proactive governance, others face considerable challenges such as inadequate funding, political instability, and resistance to change. Addressing these disparities requires a targeted approach that considers the unique circumstances of each region.

Successful Implementations:
In regions where policies are successfully implemented, key factors include strong community engagement, effective communication strategies, robust infrastructure, and proper resource allocation. These regions often see tangible benefits from digital transformation, such as improved government services, enhanced transparency, and increased economic opportunities.

Common Challenges:
Several common challenges hinder the effectiveness of digital transformation policies, including:
Limited Resources and Funding: Adequate funding is essential for building infrastructure, training personnel, and maintaining digital systems. Without sufficient resources, initiatives are likely to fail or have limited impact.
Lack of Political Will: Political commitment at both the state and local levels is crucial for driving and sustaining digital transformation. Without it, policies may be poorly implemented or abandoned altogether.
Inadequate Capacity and Training: Many regions lack the skilled workforce needed to implement and manage digital projects. This gap in capacity can severely limit the effectiveness of digital policies.

Poor Community Engagement: Engaging the community is vital for ensuring that digital policies are relevant and beneficial. Without proper engagement, there is a risk of implementing solutions that do not meet the actual needs of the population.
Inefficient Monitoring and Evaluation: Effective monitoring and evaluation are necessary to track progress, identify issues, and make necessary adjustments. Without it, policies may drift off course, and their impact may remain unassessed.

Common Gaps in Policy Implementation

1. **Lack of Clear Guidelines and Protocols**

In our data, the absence of clear guidelines and protocols for digital policy implementation often results in inconsistent application across different regions, particularly between urban and hard-to-reach areas. This inconsistency can hinder the uniform execution of digital transformation projects.

For instance, while urban areas like Maiduguri benefit from well-defined protocols and established ICT centers, hard-to-reach regions such as Mafa or Monguno LGA face difficulties due to vague or absent guidelines.

These observations were likewise reported World Bank publication in 2022[17], and United Nations Development Programme (UNDP) publication on Digital Governance and the Need for Clear Protocols in 2023[18].

[17] https://au.int/sites/default/files/documents/38507-doc-DTS_for_Africa_2020-2030_English.pdf
[18] https://www.undp.org/sites/g/files/zskgke326/files/2023-09/undp-a-shared-vision-for-technology-and-governance.pdf

2. Insufficient Funding and Resources

Our data highlights that insufficient funding is a major barrier to sustaining digital transformation projects. In underdeveloped areas, financial constraints limit the scope of digital initiatives, affecting their reach and impact. For example, the limited availability of resources in regions like Gujiba and Fika LGAs directly affects their ability to support robust digital infrastructure. The International Telecommunication Union (ITU) in 2022 in there publication "Financing Digital Transformation in Developing Regions"[19], also reported insufficient funding and resources as a major hindrance to nourishing digital transformation projects.

3. Inadequate Training and Capacity Building

Training programs for local officials and stakeholders are often insufficient, impacting their ability to effectively implement digital policies. This is evident in areas with fewer training centers and capacity-building initiatives. For example, the low level of ICT training in remote areas like Mobbar LGA contrasts with the more developed training programs in urban centers. UNESCO launched a Dynamic Coalition for Digital Capacity Building at the World Summit on the Information Society Forum in 2023 to mitigate inadequate training and capacity building issues that serve as a barrier to digitization[20] in Developing Countries. As also highlighted in the publication "Bridging the Skills Gap: The Role of Training in Digital Transformation"[21].

4. Poor Coordination and Communication

Our findings suggest that poor coordination among stakeholders leads to fragmented efforts and inefficiencies. For instance, the lack of effective communication channels between government agencies and local communities can result in duplicated efforts and missed opportunities for collaboration in areas like Damaturu and Yobe. To verify our findings the report by Harvard Business Review in 2023 titled "The Importance of Coordination in Digital Initiatives" and also World Economic Forum on "Effective Communication Strategies for Digital Transformation in2022, both emphasized coordination and communication as a barrier to digital transformation.

5. Limited Community Engagement

Limited community engagement in the planning and implementation phases often results in policies that do not fully address the needs of the population. Our data shows that areas with higher community involvement, such as those with active local ICT centers, tend to have more successful digital initiatives. Community Engagement in Digital Transformation as reported in the article "Digital Transformation by the World Bank Group in 2023[22] is a necessary factor for digital transformation.

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[19] https://www.itu.int/en/ITU-D/Regional-Presence/Africa/Pages/ITU-Africa-Regional-Initiatives.aspx
[20] https://www.unesco.org/en/articles/dynamic-coalition-digital-capacity-building-launched
[21] https://www.mckinsey.com/capabilities/people-and-organizational-performance/our-insights/taking-a-skills-based-approach-to-building-the-future-workforce
[22] https://www.worldbank.org/en/topic/digital

6. Inadequate Monitoring and Evaluation

The lack of robust monitoring and evaluation mechanisms makes it challenging to assess the effectiveness of digital policies. In areas like Fika and Jakusko LGAs, without proper evaluation frameworks, it is difficult to gauge progress and make necessary adjustments to digital initiatives. OECD in 2023 suggested appropriate Monitoring and Evaluation of Digital Projects as a vital role for digital transformation[23].

7. Limited Digital Infrastructure and Technology

The absence of basic digital infrastructure, such as reliable internet connectivity and access to digital devices, is a significant barrier to policy implementation. In remote areas like Mobbar, the lack of infrastructure severely limits the effectiveness of digital policies. Nigeria's infrastructure deficit is 40% short of World Bank standard[24] strengthens our findings on insufficient infrastructure as a limitation to digitization.

8. Limited Data-Driven Decision Making

Data-driven decision-making is often limited, affecting the effectiveness of digital initiatives. Our data indicates that areas with better access to data and analytics tools, like Maiduguri, can make more informed decisions compared to those without such resources. This component is also showcased in article published by Todd Decapua in 2024 with title "Foster a Data-Driven Culture and Decision-Making"[25] and also the publication by McKinsey & Company in 2023 - Data-Driven Decision Making in Digital Transformation[26].

9. Socio-Cultural Barriers

Cultural and social norms can limit the adoption of digital services, particularly among marginalized groups. Our findings emphasize that addressing these barriers requires culturally sensitive approaches, especially in regions with deep-rooted socio-cultural practices. Social and cultural barriers as a contributor to digital divide have been reported in the article Bridging gender digital divide[27] by UNICEF in 2022. Also, the World Bank report on Digital development[28] social and cultural norms as hindrance to adoption of digital services.

10. Resistance to Change and Innovation

Resistance to change and a lack of a culture of innovation can hinder the adoption of new digital technologies. Our data suggests that fostering a culture of innovation and providing incentives can help overcome these challenges, particularly in regions like Borno where traditional practices are more prevalent. Dealing with resistance to change

[23] https://www.oecd.org/en/publications/evaluation-systems-in-development-co-operation-2023_a255365e-en.html
[24] https://www.dataphyte.com/latest-reports/nigerias-infrastructure-deficit-is-40-short-of-world-bank-standard/
[25] https://www.linkedin.com/pulse/foster-data-driven-culture-decision-making-sub-article-todd-decapua-ohoxc/
[26] https://www.mckinsey.com/featured-insights/mckinsey-explainers/
[27] https://data.unicef.org/wp-content/uploads/2023/05/Bridging-the-Gender-Digital-Divide-1.pdf
[28] https://thedocs.worldbank.org/en/doc/b16e2ba1cb754ab47a2dd1b214dd374e-0400062023/original/DigitalDevelopmentBrochure.pdf

as published in a report by Harvard business school[29] indicates that resistance to change is a factor contributing to acceptance of digital technologies. One of the keys to digital transformation success is capacity to change as described in the article "Digital transformation – five key success factors"[30]. This is an indication that resistance to change is a factor to hindrance of accepting digital transformation as our research findings indicated.

National policies on digital economy often address gender inclusion and the needs of People with Disabilities (PWDs) to ensure equitable participation in the digital transformation. Here's an overview of what these policies generally include regarding gender and disability inclusion:

Digital Economy Policies Inclusion for gender and People with Disabilities (PWDs)
National policies on the digital economy increasingly emphasize the importance of gender inclusion and the needs of People with Disabilities (PWD) to foster equitable participation in the digital transformation. As digital technologies reshape economies and societies, it is essential to ensure that all individuals, regardless of gender or ability, can access and benefit from these advancements. This overview explores key strategies and initiatives within digital economy policies that aim to bridge the gender digital divide, empower women in technology, and promote accessibility for PWD.

1. Digital Economy Strategy:

Promote inclusive digital growth and ensure that all groups, including women, benefit from digital advancements.
Gender Digital Divide: Strategies to close the gender gap in digital access and usage.
Women's Empowerment: Encouraging women's participation in digital sectors such as technology, entrepreneurship, and leadership roles.
Digital Literacy: Targeted programs to increase digital literacy among women and girls, especially in underserved areas.
Implementation: Policies may include initiatives for women-focused digital skills training, support for female entrepreneurs in tech, and gender-sensitive digital infrastructure development.

2. National ICT Policy:

Ensure equitable access to ICT resources and opportunities for all genders.
Equal Access: Addressing barriers that women face in accessing ICT resources and opportunities.
Economic Opportunities: Promoting women's involvement in the ICT sector, including support for women-led startups and tech businesses.
Safety Online: Ensuring that online spaces are safe for women and addressing issues such as cyber harassment.

[29] https://hbr.org/1969/01/how-to-deal-with-resistance-to-change
[30] https://insights.tt-s.com/en/digital-transformation-five-key-success-factors

Implementation: Includes funding for gender-focused ICT programs, partnerships with organizations promoting women in technology, and policies to support women's digital entrepreneurship.

3. National E-Government Strategy:

Enhance the accessibility of e-government services to all citizens, including women and PWD.
Accessibility: Ensuring that e-government platforms are designed to be user-friendly and accessible to women and people with disabilities.
User-Centric Design: Incorporating feedback from diverse groups to improve service delivery and accessibility.
Implementation: Includes guidelines for designing accessible digital government services and integrating accessibility features into e-government platforms.

Digital Economy Policies and People Living with Disabilities

1. ***Digital Inclusion Strategy:***

Ensure that people with disabilities are included in the digital economy and have access to digital tools and services.
Accessibility: Mandating that digital products, services, and platforms meet accessibility standards.
Assistive Technologies: Promoting the development and availability of assistive technologies that support PWD.
Employment Opportunities: Encouraging the inclusion of PWD in the digital workforce and supporting disability-inclusive hiring practices.
Implementation: Includes accessibility audits, funding for assistive technology research, and support for disability-inclusive digital initiatives.[31]

2. ***National ICT Policy:***

Integrate disability considerations into digital infrastructure and services.
Accessible Digital Services: Ensuring that websites, applications, and digital services are accessible to people with various disabilities.
Inclusive Design: Encouraging the use of universal design principles in digital products and services.
Training and Support: Providing training for developers and service providers on accessibility best practices.
Implementation: Policies may include requirements for digital accessibility, incentives for developing accessible technologies, and support for accessibility training programs.

3. ***National Development Plan:***

Incorporate digital inclusion into broader development goals.
Disability Rights: Aligning digital economy goals with the rights of people with disabilities.

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Cross-Sector Collaboration: Promoting collaboration between government, private sector, and disability organizations to enhance digital inclusion.
Implementation: Strategies may involve cross-sector partnerships, public awareness campaigns on disability inclusion in the digital economy, and integration of disability considerations into national digital plans.

Donors and INGOs in Digital Policy Implementation

1. ZOA

ZOA, a Dutch INGO, focuses on humanitarian and development projects, including those that leverage digital tools to enhance service delivery and community engagement.
Activities:

1. Digital Literacy Training: ZOA implements programs to improve digital skills among vulnerable populations, including refugees and Internally Displaced Persons (IDPs). This training helps individuals use digital tools for education, communication, and economic activities.
2. Digital Solutions in Service Delivery: ZOA integrates digital technology into service delivery, such as using mobile apps for health monitoring or education resources. This enhances the efficiency and reach of their humanitarian programs.
3. Partnerships: Collaborates with local NGOs and tech companies to deploy digital solutions tailored to community needs.
4. Examples: Educational Programs: Providing digital learning platforms in refugee camps.
5. Health Services: Using mobile health apps to track and manage health conditions in remote areas.

2. United Nations High Commissioner for Refugees (UNHCR)

UNHCR addresses the needs of refugees and IDPs, often incorporating digital tools to improve access to services and information.
Activities:

1. Digital Identity Systems: Implementing biometric and digital identification systems to provide secure and accessible services to displaced populations.
2. Information Dissemination: Developing mobile applications and digital platforms to deliver critical information on services, rights, and safety to refugees.
3. Digital Learning and Employment: Supporting digital literacy and online job platforms to enhance educational and employment opportunities for displaced individuals.
4. Examples:
5. Refugee Registration Systems: Digital systems for registering and tracking refugees to ensure they receive appropriate services.
6. E-Learning Platforms: Offering online education and training resources to displaced children and adults.

3. Mercy Corps

Mercy Corps addresses economic and humanitarian challenges through digital means, including enhancing financial services and digital literacy.

Activities:

1. Digital Financial Services: Implementing mobile banking and digital payment solutions to improve financial inclusion for underserved communities.
2. Economic Empowerment: Supporting digital entrepreneurship and access to online markets for small businesses and entrepreneurs.
3. Community Engagement: Using digital tools to facilitate communication and coordination within communities affected by crises.
4. Examples:
5. Mobile Money Programs: Enabling access to financial services in remote areas through mobile banking.
6. Digital Marketplaces: Creating online platforms for local artisans and businesses to reach wider markets.

4. United States Agency for International Development (USAID)

USAID supports various aspects of digital transformation, including infrastructure development, digital literacy, and innovation.

Activities:

1. Infrastructure Development: Funding projects to build and upgrade digital infrastructure such as internet connectivity and ICT centers.
2. Digital Literacy Programs: Supporting initiatives to enhance digital skills among youth, women, and marginalized groups.
3. Innovation Hubs: Providing grants and technical assistance for tech-based solutions and startups that address local challenges.
4. Examples: Connectivity Projects: Expanding internet access in rural and underserved areas.
5. Tech Incubators: Supporting technology incubators and accelerators to foster innovation and entrepreneurship.

5. European Union (EU)

The EU provides funding and support for digital transformation projects aimed at improving digital access and inclusion.

Activities:

1. Digital Infrastructure Projects: Funding initiatives to improve internet access and digital services in underserved regions.
2. Capacity Building: Supporting programs to build digital skills and enhance the capabilities of local institutions.
3. Cross-Sector Collaboration: Facilitating partnerships between governments, NGOs, and private sector entities to advance digital inclusion.
4. Examples: Broadband Expansion: Investing in projects to extend broadband connectivity to remote areas.
5. Digital Skills Training: Implementing training programs to improve digital literacy among women and youth.

6. Foreign, Commonwealth & Development Office, UK (FCDO)

FCDO supports digital transformation through development and humanitarian aid programs, with a focus on inclusivity and innovation.

Activities:

1. Digital Infrastructure and Services: Funding projects to enhance digital infrastructure and access to online services.
2. Innovation for Development: Supporting innovative tech solutions that address development challenges and promote digital inclusion.
3. Inclusive Policies: Encouraging policies that ensure equitable access to digital technologies for all, including marginalized groups.
4. Examples: E-Government Initiatives: Supporting projects that improve access to digital government services.
5. Tech for Good Programs: Funding initiatives that use technology to address social and economic challenges.

7. World Bank

The World Bank provides financial and technical support for digital development projects that aim to improve digital infrastructure and access.

Activities:

1. Infrastructure Development: Investing in projects to build and upgrade digital infrastructure, including broadband networks and data centers.
2. Digital Inclusion Programs: Supporting initiatives that promote digital literacy and ensure that all segments of the population can benefit from digital technologies.
3. Policy Support: Providing technical assistance to governments in designing and implementing digital policies.
4. Examples: Broadband Expansion Projects: Funding infrastructure projects to improve internet connectivity.
5. Digital Literacy Initiatives: Supporting programs that enhance digital skills among underserved communities.

8. United Nations Digital Transformation Policies

The UN supports global digital transformation efforts with a focus on inclusivity, accessibility, and innovation.

Activities:

1. Global Digital Initiatives: Promoting digital transformation through global frameworks and initiatives that address digital inclusion, accessibility, and innovation.
2. Technical Assistance: Providing support and guidance to countries in implementing digital policies and strategies.
3. Partnerships: Collaborating with governments, NGOs, and the private sector to advance digital development goals.
4. Examples: Digital Inclusion Frameworks: Supporting policies and initiatives that ensure equitable access to digital technologies.
5. Accessible Technology Projects: Promoting the development and deployment of technologies that are accessible to people with disabilities.

These donors and INGOs play a crucial role in advancing digital transformation in Nigeria by providing funding, technical support, and policy guidance. Their collaborative efforts with local NGOs help to address gaps in digital infrastructure, enhance digital literacy,

and ensure that digital advancements are inclusive and accessible to all segments of the population. Their work is essential in creating a more equitable and connected digital landscape, particularly in underserved and vulnerable communities.

Stakeholder Engagement on the Digital Gap Assessment in Borno State

The digital gap assessment in Borno State aimed to identify and address the disparities in digital access and usage among marginalized groups, particularly people living with disabilities, hard-to-reach youths, and women. These groups often face significant barriers to digital inclusion, which limit their access to essential services, educational opportunities, and economic participation. The assessment aimed to identify these challenges, explore potential solutions, and foster collaboration between government entities, private sector partners, and civil society.

The engagement involved key ministries responsible for education, reconstruction, poverty alleviation, youth development, women's affairs, and religious affairs. Discussions focused on current policies, implementation challenges, and opportunities for partnerships to bridge the digital divide. This report provides an in-depth analysis of the insights gathered from each ministry and outlines steps needed to ensure that digital services are accessible and beneficial to all segments of society.

Ministry of Education, Science, and Technology

The Ministry of Education, Science, and Technology plays a pivotal role in shaping the future of Borno State's youth by ensuring they have access to digital tools and resources necessary for modern education. The ministry has been working diligently to align the state's educational standards with the national policy on digital education. This includes efforts to equip schools with computers, provide internet access, and integrate digital literacy into the curriculum.

Challenges:

Infrastructure Deficits: Many schools, particularly in rural and hard-to-reach areas like Mobbar, Gwoza, and Monguno LGAs, lack the necessary infrastructure to support digital learning.

Resource Constraints: Scarcity of funds has hampered the ministry's ability to fully implement its digital education policies.

Opportunities:

Partnerships with Private Sector and Donors: Collaborating with private sector investors and international donors can enhance resource availability and infrastructure development in underserved areas. For instance, establishing ICT centers in Mobbar and Gwoza LGAs could provide critical digital skills training and resources.

Ministry of Reconstruction, Rehabilitation, and Resettlement (MRRR)

The MRRR is central to Borno State's efforts to rebuild communities affected by conflict and displacement. A key part of the ministry's mandate is to ensure that all residents,

including those displaced, have access to digital services that can help them rebuild their lives. The ministry's focus on inclusivity is evident in its efforts to provide digital training to marginalized groups, particularly women and people living with disabilities.

Challenges:
Digital Infrastructure Gaps: Resettlement areas, including Mobbar and Monguno LGAs, often lack basic digital infrastructure, limiting access to digital services.
Cultural Barriers: Cultural norms can inhibit certain groups, particularly women, from engaging with digital tools.

Opportunities:
Collaborative Efforts: Increased collaboration with international organizations and NGOs can address these gaps. Initiatives like mobile training units and community ICT hubs can be introduced in remote areas to improve digital access.

Ministry of Poverty Alleviation, Youth, and Sports
The Ministry of Poverty Alleviation, Youth, and Sports has a critical role in addressing the socio-economic challenges faced by youth and other vulnerable groups in Borno State. The ministry has been actively involved in initiatives aimed at reducing poverty through digital empowerment. Recognizing the potential of digital tools to create economic opportunities, the ministry has launched several training programs focused on digital skills development.

Challenges:
Infrastructure and Access Issues: Lack of infrastructure in rural areas and limited internet access hinder program effectiveness, particularly in areas like Mobbar and Gwoza LGAs.
Cultural and Social Barriers: These barriers, particularly in conservative regions, impact the participation of women and disabled persons.

Opportunities:
Expansion of Training Programs: Scaling up digital skills programs and providing mobile training units could reach more individuals in hard-to-reach areas like Mobbar. Partnerships with tech firms for affordable internet access and devices can further enhance program reach.

Ministry of Women Affairs and Social Development
The Ministry of Women Affairs and Social Development is at the forefront of efforts to address the digital gender divide in Borno State. Women, particularly in rural and conservative areas, face significant barriers to digital inclusion.

These barriers include limited access to digital devices, cultural norms that restrict women's participation in public life, and a lack of digital literacy.

Challenges:

Cultural Norms: Restrictive cultural norms in regions like Monguno limit women's access to digital tools.
Access to Devices: Limited availability of affordable digital devices for women in rural areas.

Opportunities:
Community-Based Interventions: Collaborating with local leaders to challenge restrictive norms and providing subsidized devices and internet access can improve women's digital participation. Targeted programs in Mobbar and Gwoza can also help bridge the gender digital divide.

Ministry of Religious Affairs
The Ministry of Religious Affairs has a unique role in shaping the cultural and moral landscape of Borno State. The ministry is fully aware of the complexities associated with digital platforms, particularly the potential risks and vices associated with social media. However, the ministry also recognizes the significant benefits that digital tools can offer, particularly in terms of education, communication, and economic participation.

Challenges:
Cultural Barriers: Concerns about digital platforms often stem from cultural beliefs that may restrict access, particularly for women in conservative areas.

Opportunities:
Balanced Approach: Promoting the positive aspects of digital inclusion while addressing cultural concerns can foster a more inclusive digital environment. Educational campaigns and partnerships with other ministries can help balance these concerns.
The stakeholder engagement in Borno State has highlighted both significant challenges and opportunities in addressing the digital gap among marginalized groups. Each ministry has demonstrated a commitment to promoting digital inclusion but faces obstacles related to resource constraints, infrastructure deficits, and cultural barriers.
For hard-to-reach areas like Mobbar, Gwoza, and Monguno LGAS, the report emphasizes the need for targeted interventions, including the development of digital infrastructure, expansion of training programs, and collaboration with international donors and the private sector. By addressing these specific needs and fostering collaboration between government entities, NGOs, and the private sector, Borno State can make substantial progress in bridging the digital divide and ensuring equitable access to digital opportunities for all its residents.

POSITIVE DEVIANCE APPROACH (PDA) Responses

The Positive Deviance Approach (PDA) deployed during the assessment highlighted remarkable individuals who have triumphed over significant challenges to make a substantial impact in their communities through digital skills.

Isah Ibrahim

A 27-year-old resident of Damaturu, Yobe State, manages a Cybercafé despite having partial eyesight. His journey is remarkable because he has overcome significant physical and societal challenges. With only one functioning eye, Isah faced skepticism about his ability to run a Cybercafé and operate computers. He lacked advanced digital equipment, which further limited his services. Despite these barriers, Isah's determination and resourcefulness shone through. He mastered various computer applications and provided essential services such as internet browsing and document printing. His Cybercafé has become a hub for digital literacy, where he also trains others, including people with disabilities. Isah's story exemplifies how physical limitations do not define one's potential. His resilience and ability to inspire others make his story particularly impactful.

Aisha Ahmadu

Aisha Ahmadu, is a 38-year-old from Gujiba, Yobe State, she made significant strides in ICT despite being physically disabled. Aisha, who is crippled, has developed skills in providing internet and Cybercafé services, including helping users with computer tasks and making video calls. The societal stigma and physical barriers she faced were immense, making it difficult for her to gain trust and access necessary tools. Aisha's success is attributed to her determination and innovative problem-solving. She has not only provided vital ICT services at Gujiba Government Secondary School but also empowered others by promoting digital literacy. Her work has been instrumental in proving that physical limitations do not preclude meaningful contributions to society. Aisha's impact extends beyond her immediate environment, inspiring many with disabilities to pursue careers in technology.

Maryam Aliyu

Is 26-year-old from Askira-Uba, Borno State, she has excelled in mobile app development despite facing societal discrimination due to her albinism. Maryam's journey was fraught with challenges, including difficulty accessing specialized tools and facing prejudice that undermined her potential. Despite these obstacles, Maryam pursued her passion for technology through online courses and community workshops. She developed several useful mobile applications and became a role model for others. Her efforts in conducting workshops and training sessions have promoted digital skills and inclusivity. Maryam's story is a powerful testament to overcoming societal biases and proving that determination can lead to extraordinary achievements, even in the face of adversity.

Saidu Aminu

Saidu Aminu, a 22-year-old resident of Gwange Ward, Maiduguri, Borno State, comes from a low-income family. His father worked as a carpenter, while his mother was a homemaker. The family's income was just enough to meet basic needs, often leaving Saidu and his siblings to fend for themselves when it came to school supplies and other educational needs.

Saidu faced numerous challenges during his childhood, including financial instability and limited access to quality education. His family's financial constraints often meant that Saidu

had to juggle between school and assisting his father in carpentry work to contribute to the household income.

Despite these challenges, Saidu was determined to pursue his education. He participated in after-school programs and sought out free community resources to continue his learning. His resilience and hard work paid off, allowing him to excel academically despite the odds.

Saidu's journey into digital literacy began when he attended a workshop organized by a local NGO that aimed to equip youths with basic computer skills. He quickly grasped the concepts of computer operations and internet navigation, which ignited his passion for technology. As an individual, Saidu's most significant achievement is his role in establishing a community digital center where he teaches basic computer skills and internet usage to other youths. He has trained over 40 young individuals, significantly enhancing their digital literacy and employability. At the LGA level, Saidu is recognized for his contributions to digital education and youth empowerment.

Saidu's vision is to expand his digital center into a comprehensive training facility that offers advanced courses in programming, graphic design, and other digital skills, thereby bridging the digital divide in his community.

Aisha Ibrahim

Aisha Ibrahim is a 24-year-old resident of Dikwa Ward, Borno State. Coming from a middle-income family, Aisha's parents were both teachers, which emphasized the importance of education in their household. However, the ongoing conflict in the region disrupted their lives, creating challenges that affected Aisha's educational journey.

Aisha faced significant challenges due to the insurgency in Borno State. The conflict led to the closure of schools and displacement of her family, making it difficult for Aisha to continue her education. Additionally, the lack of digital infrastructure in her temporary residence further hindered her learning opportunities.

Despite these challenges, Aisha's determination to succeed never wavered. She took advantage of any available educational programs offered by humanitarian organizations and community centers. Her perseverance and adaptability allowed her to continue her studies and excel academically despite the instability around her.

Aisha's interest in digital literacy was sparked when she joined a training program organized by an international NGO that aimed to empower displaced youths with digital skills. She learned basic computer operations, internet navigation, and online research, which greatly expanded her horizons. As an individual, Aisha's most significant achievement is her role in mentoring other displaced youths in digital literacy. She has trained over 30 individuals in computer skills and online research, helping them to access educational resources and improve their employability. At the LGA level, Aisha is recognized for her efforts in promoting digital literacy among displaced youths.

Aisha's vision is to establish a digital learning hub for displaced individuals, providing them with access to technology and digital skills training that can help them rebuild their lives and achieve their goals.

Musa Garba

Musa Garba, a 21-year-old resident of Biu, Borno State, comes from a low-income family. His father worked as a farmer, while his mother sold produce at the local market. The family's income was barely enough to cover basic necessities, making it challenging for Musa to focus on his education.

Musa faced numerous challenges growing up, including financial constraints and the lack of access to quality education. His family's financial instability meant that Musa often had to skip school to help his parents with farm work and other income-generating activities.

Despite these challenges, Musa was determined to pursue his education. He utilized free community resources and participated in after-school programs to continue learning. His dedication and hard work allowed him to excel academically despite the difficult circumstances.

Musa's journey into digital literacy began when he attended a community workshop on basic computer skills and internet usage. He quickly developed a passion for technology and continued to learn through online resources and community programs. As an individual, Musa's most significant achievement is his role in establishing a digital literacy club in his community. He has trained over 35 young individuals in basic computer skills and internet navigation, significantly improving their digital literacy. At the LGA level, Musa is recognized for his contributions to digital education and youth empowerment.

Musa's vision is to expand his digital literacy club into a fully equipped training center that offers a wide range of digital skills courses, helping more youths in his community to access opportunities and bridge the digital divide.

Hauwa Ahmed

Hauwa Ahmed is a 23-year-old resident of Damaturu, Yobe State. She comes from a low-income family where her father worked as a petty trader and her mother as a homemaker. The family's financial situation was often unstable, making it difficult for Hauwa to access consistent educational resources.

Hauwa faced significant challenges growing up, including financial constraints and limited access to quality education. Her family's financial instability often meant that Hauwa had to balance between her studies and helping her mother with household chores and income-generating activities.

Despite these challenges, Hauwa was determined to pursue her education. She sought out scholarships and free educational programs to continue learning. Her resilience and dedication allowed her to excel academically despite the financial difficulties.

Hauwa's interest in digital literacy was sparked when she attended a training program organized by a local NGO that aimed to empower young women with digital skills. She learned basic computer operations, internet navigation, and online research, which greatly expanded her opportunities.

As an individual, Hauwa's most significant achievement is her role in mentoring other young women in digital literacy. She has trained over 25 individuals in computer skills and online research, helping them to access educational resources and improve their employability. At

the LGA level, Hauwa is recognized for her efforts in promoting digital literacy among young women.

Hauwa's vision is to establish a digital learning hub for young women, providing them with access to technology and digital skills training that can help them achieve their goals and become financially independent.

Fatima Ali

She is a 22-year-old resident of Geidam, Yobe State. She comes from a low-income family where her father worked as a mechanic and her mother as a seamstress. The family's income was just enough to meet basic needs, often leaving Fatima and her siblings to struggle for educational resources.

Fatima faced numerous challenges growing up, including financial constraints and limited access to quality education. Her family's financial instability often meant that Fatima had to balance her studies with helping her parents in their work to contribute to the household income. Despite these challenges, Fatima was determined to pursue her education. She utilized free community resources and participated in after-school programs to continue learning. Her dedication and hard work allowed her to excel academically despite the difficult circumstances.

Fatima's journey into digital literacy began when she attended a community workshop on basic computer skills and internet usage. She quickly developed a passion for technology and continued to learn through online resources and community programs.

As an individual, Fatima's most significant achievement is her role in establishing a digital literacy club in her community. She has trained over 30 young individuals in basic computer skills and internet navigation, significantly improving their digital literacy. At the LGA level, Fatima is recognized for her contributions to digital education and youth empowerment.

Fatima's vision is to expand her digital literacy club into a fully equipped training center that offers a wide range of digital skills courses, helping more youths in her community to access opportunities and bridge the digital divide.

Umar Abubakar

Umar Abubakar is a 21-year-old resident of Potiskum, Yobe State. He comes from a low-income family where his father worked as a farmer and his mother as a homemaker. The family's income was barely enough to cover basic necessities, making it challenging for Umar to focus on his education.

Umar faced numerous challenges growing up, including financial constraints and the lack of access to quality education. His family's financial instability meant that Umar often had to skip school to help his parents with farm work and other income-generating activities. Despite these challenges, Umar was determined to pursue his education. He utilized free community resources and participated in after-school programs to continue learning. His dedication and hard work allowed him to excel academically despite the difficult circumstances.

Umar's journey into digital literacy began when he attended a community workshop on basic computer skills and internet usage. He quickly developed a passion for technology and continued to learn through online resources and community programs.

As an individual, Umar's most significant achievement is his role in establishing a digital literacy club in his community. He has trained over 35 young individuals in basic computer skills and internet navigation, significantly improving their digital literacy. At the LGA level, Umar is recognized for his contributions to digital education and youth empowerment.

Umar's vision is to expand his digital literacy club into a fully equipped training center that offers a wide range of digital skills courses, helping more youths in his community to access opportunities and bridge the digital divide.

Abdullahi Garba Dan-Fulani

Abdullahi Garba Dan-Fulani is a 20-year-old resident of Sabon Gari Ward in Fulatari Area. Coming from a modest household where the primary source of income was subsistence farming, Abdullahi experienced firsthand the struggles associated with financial instability. The family's income was barely sufficient to cover basic needs, often forcing Abdullahi and his siblings to assist in farm work instead of focusing on their education.

Abdullahi faced significant challenges growing up. The death of his father at an early age left his mother as the sole breadwinner, which added considerable financial strain on the family. Access to quality education was limited, and Abdullahi often missed school to help on the farm or take up odd jobs to support his family.

Determined to change his family's fortune, Abdullahi sought out every opportunity to learn. He befriended a local technician who repaired phones and offered to work for free in exchange for training. Abdullahi's perseverance paid off as he quickly mastered the basics of phone repairs, gradually building a clientele in his community.

Abdullahi's interest in digital literacy began when he observed the rising demand for smartphone repairs in his community. He learned about digital literacy through a local NGO initiative that offered free courses on basic computer skills and smartphone repairs. Abdullahi attended evening classes diligently and applied his newfound knowledge to enhance his services. As a community member, Abdullahi's greatest achievement is establishing a small repair shop that employs two other youths, thereby reducing unemployment in his area. At the LGA level, Abdullahi is recognized for training over 50 young individuals in smartphone repairs and basic computer literacy, significantly enhancing their employability and digital skills.

Abdullahi's vision is to expand his business into a fully equipped repair and training center that can serve a larger audience, further bridging the digital divide in his community.

Sama'ila Alh Haruna

Sama'ila Alh Haruna is a 25-year-old entrepreneur residing in Sabon Gari Ward, Alin Tolia Area, Gashua, Yobe State. Born into a low-income household, Sama'ila's family struggled to make ends meet. His father worked as a laborer, while his mother managed a small vegetable stall. The family's income was barely enough to cover basic necessities, and education was not a priority due to financial constraints.

Sama'ila faced numerous challenges during his childhood. Limited financial resources meant that he often had to forego school to help his mother at the market or take on odd jobs to contribute to the household income. Despite his keen interest in education, Sama'ila could only complete primary school due to these economic hardships.

To overcome these challenges, Sama'ila leveraged his entrepreneurial spirit. He started repairing old phones and selling them at the local market. Over time, his skills improved, and he saved enough money to purchase basic repair tools and accessories. His persistence and determination gradually paid off as his business grew.

Sama'ila's journey into digital literacy began through a local community program that offered free training in computer skills and graphic design. He enrolled in evening classes and quickly learned how to use design software and Microsoft Word. This knowledge enabled him to diversify his business by offering design services for wedding invitations and other graphics. As an individual, Sama'ila is proud of his ability to transform his skills into a sustainable business that supports his family and community. He has trained more than 30 young people in his community in smartphone repairs and basic computer skills, significantly improving their employment prospects. At the LGA level, Sama'ila is recognized for his contributions to digital literacy and youth empowerment.

Sama'ila's ultimate goal is to establish a training center where he can provide comprehensive digital literacy and vocational training to the youth in his community, helping them achieve financial independence and bridging the digital gap.

Sara John

Sara John, a 20-year-old resident of Gashua in Bade LGA, Yobe State, comes from a middle-income family. Her parents were both educators, which instilled in Sara a strong value for education and self-improvement. Despite their relatively stable financial situation, the family still faced challenges typical of their community, such as limited access to advanced educational resources and technology.

Sara's primary challenge during her younger years was the limited access to technology and modern educational resources. Although her parents emphasized the importance of education, the local schools lacked adequate facilities and exposure to digital literacy, which hindered her learning experience.

Sara overcame these challenges by taking the initiative to seek out knowledge beyond the traditional classroom. She borrowed books from the local library and utilized public internet access points to learn more about technology and digital skills. Her proactive approach enabled her to stay ahead of her peers and develop a keen interest in digital literacy.

Sara's journey into digital literacy was facilitated by a government program aimed at improving digital skills among youths. She enrolled in a course that taught computer basics, internet navigation, and SIM card registration processes. Sara excelled in these classes, which led her to start her own POS business, "Sara and Brothers POS GASHUA," where she employs her digital skills to offer various services.

As an individual, Sara's most significant achievement is establishing her POS business, which has become a vital service provider in her community. She has trained over 20 young

individuals in digital literacy and SIM card registration processes. Sara's contributions have been recognized at the LGA level, where she has been invited to speak at youth empowerment seminars to share her journey and inspire others.

Sara's vision is to expand her business and create a digital literacy training hub in her community, where she can offer comprehensive training programs and empower more youths to embrace digital skills.

Abubakar Mallam Mamman

Abubakar Mallam Mamman is a 25-year-old resident of Humaira & Kairat Plaza, Old Market, Fika, Yobe State. He comes from a lower-middle-class family that primarily relied on subsistence farming for income. Growing up, Abubakar experienced the hardships of living in a rural area with limited access to modern amenities and educational resources.

As a child, Abubakar faced significant challenges, including limited access to quality education and healthcare. His eye condition, which made it difficult to work under bright light, further complicated his ability to study and participate in normal childhood activities. Despite these obstacles, Abubakar was determined to pursue his education and improve his family's situation.

Abubakar's resilience and determination helped him overcome these challenges. He sought medical advice for his eye condition and adapted his study habits to accommodate his sensitivity to light. He also worked part-time jobs to support his education, demonstrating remarkable perseverance and commitment to his goals.

Abubakar's interest in digital literacy was sparked when he attended a community workshop on computer skills. The workshop provided him with basic training in computer operations, including the use of Microsoft Excel for creating and editing worksheets. He further honed his skills by practicing at a local internet café and eventually started teaching others in his community.

Abubakar's most notable achievement is his role as a community educator. He has taught computer skills to over 50 students, empowering them with digital literacy that enhances their employability. At the LGA level, Abubakar is recognized for his contributions to community education and his efforts to bridge the digital divide.

Abubakar's long-term goal is to establish a computer training center that caters to individuals with disabilities, providing them with the necessary skills and resources to achieve their full potential.

Abubakar Abubakar

Abubakar Abubakar is a 20-year-old resident of Sirife, Fika LGA, Yobe State. Born into a family with a modest income, Abubakar's parents worked as local traders. The family's financial situation was often unstable, making it difficult to access consistent educational resources. Despite these challenges, Abubakar was determined to pursue his education and develop his skills.

Abubakar faced numerous challenges growing up, including financial constraints that limited his access to educational materials and opportunities. Additionally, the lack of

digital infrastructure in his community hindered his ability to explore and learn about technology.

To overcome these challenges, Abubakar took a proactive approach. He sought out alternative learning methods, such as borrowing books and using public internet facilities to enhance his knowledge. His dedication and resourcefulness enabled him to stay ahead in his studies and develop a keen interest in technology.

Abubakar's journey into digital literacy began when he attended a community-based digital literacy program. The program provided him with essential skills in computer operations, design software, and internet usage. Abubakar excelled in these courses and used his new skills to start a small business offering digital services to his community.

Abubakar's most significant achievement is the establishment of his digital services business, which has become a valuable resource for his community. He has trained over 30 young individuals in digital literacy, significantly improving their employment prospects. At the LGA level, Abubakar is recognized for his contributions to digital education and youth empowerment.

Abubakar's vision is to expand his business and create a comprehensive digital training center that offers a wide range of courses and resources to his community, helping to bridge the digital divide and empower more youths with valuable skills.

Musa Usman

Musa Usman, a 35-year-old man, developed a remarkable talent for ICT despite limited opportunities and resources. He spent years learning and honing his skills, often working on broken devices and scraps from the local market. Musa's expertise made him the go-to person for ICT support in his community, helping the local school, church, and small businesses with their technological needs.

He set up the computer lab at the local school, fixed the church's website, created a mobile app for the community's small businesses.

A leading tech company visited the community and was impressed by Musa's skills. They offered him a job as a lead developer, which he accepted, moving to the city and becoming a role model for his community.

Musa continued to support his community remotely, developing innovative solutions such as a mobile health app for remote consultations and an e-learning platform for students. His success inspired a new generation of young people in the community to pursue careers in ICT.

Years later, Musa returned to his community and established a state-of-the-art technology center to provide training and opportunities for others. His journey from a small, poor community to a leading tech expert served as a beacon of hope, proving that talent, hard work, and determination can overcome any obstacle.

Aisha Ahmed

Aisha Ahmed, a 30-year-old woman, had a remarkable talent for ICT despite the limited resources and opportunities surrounding her. She spent countless hours learning to code,

design websites, and develop software, often using her smartphone and a small computer she repaired herself.

He digitized the records at the local healthcare center, created a platform for farmers to sell their produce online and developed an app to connect residents with vital services.

A global tech company visited the community and was impressed by Aisha's exceptional abilities. They offered her a job as a lead developer, which she accepted, moving to the city and becoming a role model for women in tech.

Aisha continued to support her community remotely, developing innovative solutions such as a telemedicine platform and an e-learning system for children. Her success inspired a new generation of young girls in the community to pursue careers in ICT.

Years later, Aisha returned to her community and established a technology hub to provide training and opportunities for others. Her journey from a small, poor community to a leading tech expert served as a testament to the power of determination, talent, and the impact one person can have on the world.

Richard Samson

Richard Samson, a 25-year-old man from Damaturu Maiduguri Road, had a remarkable talent for ICT despite the limited resources and opportunities surrounding him. He spent countless hours learning to code, build websites, and develop software using online resources and a small computer he repaired himself.

Richard has set up electronic health records at the local clinic, created a digital platform for community farmers to sell their produce and developed a mobile app to connect residents with vital services.

A leading tech company visited the community and was impressed by Richard's exceptional abilities. They offered him a job as a lead developer, which he accepted, moving to the city and becoming a role model for young people in his community.

Richard continued to support his community remotely, developing innovative solutions such as a telemedicine platform and an e-learning system for children. His success inspired a new generation of young people in the community to pursue careers in ICT.

Years later, Richard returned to his community and established a technology hub to provide training and opportunities for others. His journey from a small, poor community to a leading tech expert served as a testament to the power of determination, talent, and the impact one person can have on the world.

Gladis Joel

Gladis Joel, a 28-year-old woman, had a remarkable talent for ICT despite limited resources and opportunities. She spent most of her free time learning and honing her skills, often sneaking into the local library to use their computers.

Gladis became known as the community's tech whiz, assisted with phones, computers, and other devices.

A non-profit organization focused on digital literacy and empowerment discovered Gladis's exceptional abilities. They offered her a scholarship to pursue a formal education in ICT and a chance to work with their team to develop innovative solutions for underserved communities.

Gladis traveled to new places, met inspiring people, and gained recognition for her work. She remained committed to giving back to her community, establishing a technology hub to provide training and resources for others.

Gladis's story serves as a testament to the power of determination, talent, and the impact one person can have on the lives of many.

Mustapha Mohammed

Mustapha Mohammed, a 21-year-old man from Damaturu Gujba Road, had a remarkable talent for ICT despite limited resources and opportunities. He spent most of his teenage years learning to code and build websites using online resources and scraps from the local electronics waste dump.

He supported local market vendors create a digital platform to sell products, built a website for the community center and developed a mobile app for the town's transportation system.

A group of entrepreneurs noticed Mustapha's exceptional abilities and offered him a scholarship to study computer science at a prestigious university and a chance to work on innovative projects.

Mustapha excelled in his studies, worked on cutting-edge projects, and started his own tech startup, creating jobs and opportunities for others in his community. His success inspired a wave of young people to pursue careers in ICT.

Mustapha's story serves as a testament to the power of talent, determination, and the impact one person can have on their community. He became a role model, proving that with hard work and the right support, anyone can achieve greatness, no matter where they come from.

Kaku Hassan

Kaku Hassan, a 28-year-old from Jakusko Local Government Area of Yobe State, displayed remarkable skills in updating smartphone and computer operating systems. Despite his limited resources, he became adept at swapping old northern versions of systems for new, updated versions. His talent for diagnosing technical issues and finding practical solutions made him a valuable asset to his community.

Specialized in updating iPhone and Computer Operating Systems. employed over 6 staff members in his shop and developed strong soft skills, enabling effective communication with clients and teamwork.

Kaku faced challenges due to the lack of appropriate and digital equipment or machinery, which hindered his ability to work more efficiently and digitally.

Despite these challenges, Kaku remained committed to his work and offered to train others in his community and local government, sharing his knowledge and skills to uplift his community.

Abubakar Musa

Abubakar Musa, a 32-year-old from Jakusko Local Government Area of Yobe State, excelled in managing a Point of Sale (POS) transactions. With his knowledge and experience, he became proficient in POS deposits, transfers, withdrawals, and checking bank balances. He also has expertise in opening various bank accounts, managing multiple POS transactions, knowledgeable in bank account management and NIN/BVN validation.

Abubakar faced challenges due to the lack of equipment and digital facilities, which limited his ability to employ his other skills effectively.

Despite these limitations, Abubakar expressed his willingness to teach and facilitate others, sharing his business skills and knowledge with his community.

Isah Ibrahim

Isah Ibrahim, a 27-year-old from Jakusko Local Government Area, had extensive experience in internet and Cybercafé operations. Despite his partial sight in one eye, Isah excelled in operating computer systems and surfing the internet. He could design in different systems and computer applications, making him a valuable resource in his community.

Operated computer systems and surfed the internet effectively, designed various systems and computer applications and employed over 6 staff members in his shop.

Isah lacked appropriate digital equipment and machinery, which limited his efficiency and ability to digitalize his work further.

Isah remained dedicated to his work and continued to support his community, using his skills and knowledge to benefit others despite his disability.

Mohammed Hassan

Mohammed Hassan, a 29-year-old from Jakusko Local Government Area, has extensive experience in sim card registration, swapping, linking NIN on sim cards, and selling new sim and recharge cards. He has excelled in these tasks and employed over 8 staff members in his shop.

Mohammed lacked a printer to print recharge cards and some gadgets like a fingerprint scanner, limiting his ability to perform his tasks more efficiently and digitally.

Mohammed continued to work diligently, using his skills to support his community and provide employment opportunities, emphasizing that skills are often more valuable than a degree.

GAPS AND CHALLENGES:

Despite the progress made during the study, several notable challenges were encountered, which impacted the data collection and overall stakeholder engagement process:

5. *Limited Access to Stakeholders*: One of the primary challenges faced by the team was the inability to meet with some key stakeholders in person. This posed a significant obstacle, particularly in fostering productive policy discussions and obtaining firsthand insights. Engaging with stakeholders at the local and state levels is crucial for understanding their perspectives on digital inclusion and the gaps that exist in policy implementation. The difficulty in arranging in-person meetings limited opportunities for deeper collaboration and restricted the exchange of ideas that could have been beneficial in refining recommendations. This challenge also highlights the importance of better logistical planning and proactive engagement strategies in future studies.
6. *Security Concerns in Key Areas*: Security issues in Guja, Yobe State, and Gwoza, Borno States, presented major hurdles in reaching respondents and conducting fieldwork. Both areas have faced ongoing security threats, which have made access to certain communities difficult and at times unsafe. As a result, the team was unable to reach some of the most vulnerable and hard-to-reach populations, limiting the comprehensiveness of the data collected in these regions. Security challenges not only hampered direct data collection efforts but also affected the team's ability to gain nuanced insights into the lived experiences of these communities. This emphasizes the need for alternative methods of engagement, such as remote interviews or collaboration with local CSOs that have more consistent access to these areas.

RECOMMENDATIONS:

Objective 1: Strategic Recommendations for Enhancing Digital Services.

Based on the findings from the digital gap assessment, addressing limitations, critical needs, and opportunities for Community, Private, and Public Partnerships (CPPPs) is essential for enhancing digital services. The following strategic recommendations are proposed, with a focus on People with Disabilities (PWD), gender-specific issues, and hard-to-reach areas.

1. Addressing Poor Network Coverage

Investment in Infrastructure: Advocate for and facilitate targeted investments to expand network infrastructure in underserved and remote areas. This includes upgrading existing networks and deploying innovative technologies such as satellite internet and community-based wireless networks, which can provide connectivity in challenging regions in Borno and Yobe State.

Public-Private Partnerships: Foster partnerships between government entities, private telecom companies, and local stakeholders to align network development with community needs. Create incentive programs to encourage telecom companies to invest in rural and underserved regions.

Innovative Solutions: Explore and implement innovative connectivity solutions such as low-Earth orbit satellites and community mesh networks to enhance coverage, especially in areas with limited infrastructure.

2. Reducing High Costs of Services

Subsidies and Financial Assistance: Implement government or NGO subsidies to alleviate the financial burden on low-income individuals, including young women, internally displaced persons and those with disabilities. Explore programs that provide free or subsidized access to essential digital services.

Affordable Pricing Models: Encourage telecom companies and service providers to develop tiered pricing models or pay-as-you-go options that cater to different financial situations, ensuring affordability for all demographic groups.

Community-Based Funding: Support community-based funding initiatives that pool resources to provide low-cost or free digital services to underserved populations, including PWD and women.

3. Improving Access to Digital Service Centers

Expand Physical Presence: Establish additional digital service centers or deploy mobile units in underserved areas such as Gwoza, Gujba LGAs among others in Borno and Yobe State. Ensure these centers are accessible and provide a range of essential services, including support for people with disabilities.

Digital Kiosks: Integrate digital kiosks or self-service points in community centers, libraries, and local institutions to increase access points for digital services.

Collaborate with Local Institutions: Partner with local institutions and community centers in Borno and Yobe States to serve as access points for digital services and support, particularly in hard-to-reach areas. A collaboration with Borno Emirate Council would be strategic to spread to the entire regions in the state.

4. Enhancing Digital Literacy

Comprehensive Training Programs: Develop and implement comprehensive digital literacy programs tailored to different demographics, including PWD and young women. Utilize community-based workshops for youths in Tsangaiya and Islamiya non-formal education setting, online tutorials for higher institutions such as Yobe State University, and partnerships with educational institutions in Borno and Yobe state.

Integration into Education: Integrate digital literacy into basic and secondary school curricula and vocational training programs such as the TVET centres to ensure early and continuous skill development, particularly for girls and young women.

Collaborate with Tech Companies: Partner with tech companies to offer training programs and resources that address digital skills gaps, focusing on inclusivity and accessibility in Borno and Yobe states.

5. Addressing Gender-Specific Barriers

Promote Gender Equality: Advocate for and implement policies that promote gender equality in digital access. Address cultural and societal barriers that restrict access for women and girls, drawing on successful examples from other regions such as Lagos and Ogun State.

Targeted Programs: Develop targeted outreach and support programs for women and girls to ensure they have equal opportunities to engage with digital services, considering the specific needs of each community.

Community Awareness Campaigns: Conduct awareness campaigns to challenge and change cultural norms that limit digital access based on gender. Highlight success stories and role models to inspire change through state and traditional institutions.

Opportunities for Partnerships - Joint Funding Initiatives

Advocate for Multi-Stakeholder Collaboration: Encourage partnerships between governments, private sector, and international organizations to pool resources for digital service projects such as the ongoing EU-ZOA partnership.

Pilot Programs: Initiate pilot joint funding programs to demonstrate the benefits and feasibility of collaborative financial efforts.

Community Training Programs

Leverage Community Support: Utilize local NGOs and community organizations to design and deliver training programs that meet the specific needs of different populations.

Expand Outreach: Scale up successful training programs and ensure they reach a broad audience, including remote and underserved areas.

Infrastructure Development
Public-Private Infrastructure Projects: Support and promote joint infrastructure projects involving both public and private sectors to improve digital connectivity.

Focus on Sustainability: Ensure that infrastructure development projects include plans for long-term sustainability and maintenance.

Engaging Local Stakeholders
Enhance Documentation and Communication: Develop a comprehensive database of existing and potential partnerships to improve awareness and coordination. Increase transparency by sharing information about partnership successes and challenges.

Focus on Sustainability: Ensure that partnership initiatives include sustainability plans to maintain their impact over time. Implement regular evaluations to assess the effectiveness and sustainability of partnerships and make necessary adjustments.

Engage Local Stakeholders: Involve local leaders and NGOs in the planning and implementation of digital service initiatives to ensure they are relevant and effective. Incorporate community feedback into project design and execution to align initiatives with local needs and priorities.

Objective 2: Accessibility and Ownership
Based on the comprehensive analysis, the following strategic recommendations aim to bridge the digital divide, focusing on device accessibility, digital literacy, socioeconomic barriers, inclusive design, gender equality, and public-private partnerships.

1. Enhance Device Accessibility and Ownership

Subsidized Devices: Implement subsidy programs or financial assistance schemes to make smartphones, computers, and tablets more affordable for low-income households. This initiative could draw on successful models such as those used by the ITU in other regions.

Device Loan Programs: Establish community-based device loan programs, allowing individuals to borrow digital devices from local centers or libraries. This approach can increase device availability without the need for outright ownership.

2. Improve Digital Literacy and Skills Development

Integrated Curriculum: Integrate digital literacy into school curricula from an early age, focusing on practical skills like online safety, mobile banking, and digital communication. This approach aligns with UNESCO's recommendations (2022) and helps build long-term digital competence. Observations from the communities we visited revealed that each community faces unique challenges and needs. Addressing these specific needs and cultural contexts in digital literacy programs will add greater value and relevance, making the curriculum more effective and responsive to local requirements.

Community Training: Expand community-based digital literacy programs through workshops at community centers and digital hubs. This approach targets those who missed out on formal education, ensuring broader skill development.

3. Address Socioeconomic Barriers

Affordable Internet Access: Promote initiatives to provide affordable and reliable internet access in low-income and rural areas. Partner with telecom providers to offer discounted rates or implement community Wi-Fi initiatives, following strategies similar to those recommended by the ITU.

Financial Inclusion Programs: Develop programs to enhance financial literacy and access to digital financial services, enabling low-income individuals to effectively use mobile banking and online payments. Such programs can draw from successful models in financial inclusion.

4. Foster Inclusive Design and Accessibility

Accessible Technology: Encourage the development and adoption of digital devices and software designed to be more accessible for individuals with disabilities. This includes improving features like voice commands, screen readers, and customizable interfaces.

Assistive Technology Support: Provide funding or subsidies for assistive technologies that cater to specific needs, such as braille displays for visually impaired users or hearing aids for those with hearing impairments. This support should align with international best practices for accessibility.

5. Promote Gender Equality in Digital Access

Targeted Programs for Women: Develop programs aimed at increasing digital device ownership among women, including financial incentives, training programs, and awareness campaigns about the benefits of digital tools. Focus on overcoming barriers identified in gender digital divide reports.

Support Women Entrepreneurs: Encourage and support women entrepreneurs through digital literacy programs and access to digital marketing tools. This will enable them to leverage technology for business growth, drawing on successful international best practices.

6. Strengthen Public-Private Partnerships

Collaborative Efforts: Foster partnerships between government bodies, private sector companies, and NGOs to pool resources and expertise for digital inclusion initiatives. Joint

efforts can include providing affordable devices, expanding digital infrastructure, and delivering training programs.

Model Programs: Adapt successful models from international organizations, such as the ITU and United Nations, to fit the local context in Nigeria. These models can offer guidance on effective strategies for bridging the digital divide.

7. Leverage Shared Resources

Expand Community Digital Hubs: Invest in expanding community digital hubs and cybercafés, ensuring they are equipped with up-to-date technology and accessible to underserved populations. This approach can address the issue of limited personal device ownership.

Support Shared Access Programs: Develop programs facilitating shared access to digital resources, such as community-run tech hubs or public internet stations. This can help bridge the gap for those unable to afford personal devices.

Future Directions

Long-term Monitoring: Establish mechanisms to continuously monitor and evaluate the effectiveness of digital inclusion initiatives. This ensures adaptability to changing needs and technological advancements.

Inclusive Policy Development: Advocate for policies that integrate digital inclusion into broader socioeconomic development plans, addressing both access and skills development comprehensively.

Community Feedback: Engage with local communities to gather feedback on digital inclusion efforts, making adjustments based on their needs and experiences. This participatory approach ensures initiatives are relevant and effective.

Recommendations to Bridge the Digital Gender Gap

1. Community Awareness Campaigns

Targeted Outreach: Develop and execute community awareness campaigns aimed at challenging cultural norms and gender roles that limit women's access to digital technologies. These campaigns should emphasize the benefits of digital inclusion for both women and the broader community.

Engagement Strategies: Collaborate with local leaders, influencers, and organizations to amplify the message and foster community support. Utilize diverse media platforms—including social media, local radio, and community events—to reach a wide audience effectively.

2. Tailored Digital Literacy Programs

Skill Development Workshops: Launch digital literacy programs specifically designed for women, focusing on practical skills such as online communication, digital financial management, and safe internet use. Ensure these programs are accessible and cater to various levels of prior knowledge.

Partnerships with NGOs: Partner with non-governmental organizations (NGOs) and educational institutions to deliver these programs at community centers, schools, and other accessible locations. Offer certification or recognition for completed training to encourage participation and completion.

3. Financial Support Initiatives

Device Subsidies: Implement subsidy programs to reduce the cost of smartphones and other digital devices for women, especially those from low-income backgrounds. This could involve direct financial assistance, discounted devices, or partnerships with tech companies to provide affordable options.

Data Plan Assistance: Provide subsidized or free data plans to ensure women can maintain affordable and consistent internet access. Explore collaborations with internet service providers to offer special rates for low-income women.

4. Safe Spaces for Digital Engagement

Women-Only ICT Centers: Establish dedicated ICT centers or hubs for women that offer safe and supportive environments for accessing digital services. These centers should provide training, technical support, and a secure space free from harassment.

Enhanced Online Safety: Develop virtual platforms with robust security features to protect women from online harassment and privacy breaches. Implement measures such as anonymous reporting tools and stringent privacy settings.

5. Cultural and Structural Change Initiatives

Advocacy for Policy Change: Advocate for policies that promote gender equality in digital access and usage. Engage with policymakers to address cultural norms and gender roles that contribute to the digital gender gap.

Inclusive Design and Accessibility: Promote the development of digital tools and platforms that are designed with gender inclusivity in mind. Ensure that technology is accessible and user-friendly for women of all backgrounds and abilities.

6. Monitoring and Evaluation

Impact Assessment: Regularly evaluate the impact of digital inclusion programs on bridging the gender gap. Collect and analyze data on participation rates, skills acquired, and changes in digital access and usage to assess the effectiveness of interventions.

Feedback Mechanisms: Implement feedback systems to gather input from women about their experiences and needs related to digital access. Use this feedback to continuously refine and enhance programs and policies.

Strategic Recommendations for Policy Domestication

1. Strengthen Policy Awareness and Communication

Develop Targeted Communication Strategies: Create tailored communication plans to reach diverse demographics, particularly those in remote and marginalized areas of Borno and Yobe states. Use multiple channels such as radio, local languages, and

community leaders to simplify and disseminate policy information, making it accessible to all.

Engage Local Influencers: Leverage the influence of community figures—such as traditional leaders (Shehu of Borno), religious figures, and local educators—to share information about digital transformation policies. Ensure these messages are relatable, trusted, and culturally relevant.

2. Improve Perception and Implementation of Policies

Conduct Regional Assessments: Periodically evaluate the effectiveness of Borno and Yobe policy implementation across various regions to pinpoint successes and areas needing improvement. Address any disparities in policy impact and resource allocation to ensure equitable implementation.

Establish Clear Guidelines and Accountability: Develop and distribute comprehensive implementation guidelines that outline specific objectives, timelines, and accountability measures. This will promote consistency in policy application across different regions.

3. Enhance Localized Action Plans and Initiatives

Integrate Multiple Initiatives: Encourage the integration of community training programs, public awareness campaigns, infrastructure development, and financial incentives. A holistic approach ensures that as awareness and skills improve, there are also the resources and motivation to apply them effectively.

Promote Infrastructure Development: Prioritize infrastructure projects in underserved areas to lay a strong foundation for digital services. Focus on expanding internet access, providing digital devices, and establishing community digital hubs.

4. Foster Public-Private Partnerships (PPPs)

Leverage Private Sector Expertise: Engage the private sector in PPPs to accelerate the development of infrastructure, digital literacy programs, and service delivery. These partnerships can offer essential technology, investment, and innovation that may not be feasible for the public sector alone.

Ensure Mutual Accountability: Define clear goals, roles, and accountability structures within PPPs to ensure both public and private partners are committed to the success of digital transformation initiatives.

5. Increase Funding and Resource Allocation

Advocate for Enhanced Funding: Push for increased state and local government funding for digital infrastructure and capacity-building, particularly in low-income or remote areas.

Explore Innovative Funding Mechanisms: Utilize innovative funding sources such as grants, crowdfunding, and microfinance to support digital transformation projects, especially those targeting marginalized communities.

6. Monitor and Evaluate Policy Effectiveness

Implement Robust Monitoring Systems: Develop comprehensive frameworks for monitoring and evaluating digital transformation policies. Regular assessments will help identify gaps, measure impact, and guide real-time adjustments.

Use Data-Driven Decision Making: Apply data analytics to inform policy adjustments and ensure resources are allocated to the most effective initiatives. Regularly review data to refine strategies and improve outcomes.

7. Encourage Innovation and Adaptability

Promote Localized Innovations: Support local governments in developing digital solutions tailored to specific community needs. Encourage experimentation and adaptation to local contexts, which can provide models for broader implementation.

Address Socio-Cultural Barriers: Design initiatives that are culturally sensitive and address the unique needs of different communities, particularly marginalized groups, to enhance digital service adoption.

8. Strengthen Community Engagement

Establish Feedback Mechanisms: Set up channels for ongoing community feedback to ensure digital policies and initiatives are responsive to local needs and concerns. Utilize town hall meetings, digital surveys, and participatory planning sessions to gather input.

Enhance Digital Literacy Programs: Expand digital literacy initiatives to include marginalized groups, focusing on practical skills and real-world applications. Partner with local educational institutions and NGOs to deliver these programs effectively.

CONCLUSION:

The stakeholder engagement in the FCT, Borno and Yobe States has highlighted the significant challenges and opportunities in addressing the digital gap among marginalized groups, particularly People living Disabilities, hard-to-reach youths, and women. The youths, young women, young male, undergraduates, teachers, state and non-state actors involved in the engagement has demonstrated a strong commitment to promoting digital inclusion, but also faces significant challenges in terms of resource allocation, policy implementation, and cultural barriers.

The discussions underscored the importance of collaboration between government entities, private sector partners, and civil society organizations to bridge these gaps. By working together, these stakeholders can create a more inclusive digital environment that empowers all citizens to participate fully in the digital economy and transformation.

The report emphasizes the need for sustained efforts and partnerships to achieve the goals of digital inclusion and development in Borno and Yobe State. The assessment in the FCT, Abuja particularly pointed out required policy domestication and the need to support Borno and Yobe States in implementing their policies on digital economy and transformation. This includes addressing the specific needs of marginalized groups, enhancing digital infrastructure, providing affordable access to digital tools, and promoting digital literacy across all segments of society. With continued collaboration and investment, Borno and Yobe State can make significant progress in closing the digital gap and ensuring that all its residents have the opportunity to benefit from the digital revolution.

The study recognized the role of some INGOs such as ZOA international and Mercy Corps in driving digital literacy in Borno and Yobe States. The role of international development partners were also recognized. At the community level, many positive deviants, champions and role models were identified through the Positive Deviance Approach.

The study concluded with useful recommendations that can enhance, support and promote digital literacy, economy and transformation in the two states. These recommendations are adaptable for other regions facing insurgency and conflicts of such magnitude in North East Nigeria.

APPENDICES

Appendix I: Photographs

FGD Session with PWD

KII with Airtel staff

FGD with Bulama and community leaders

KII with MTN staff

Enumerator Training in Borno State

FGD with women in IDP Camp Mobbar LGA

Meeting with the Commissioner Min of Humanitarian Affairs, Damaturu Yobe State.

KII with the Director Planning Research and Statistics, Yobe State Science and Technology Board

Administering a Questionnaire to a lady in IDP Camp

Appendix II: Stakeholders

The Stakeholders engagement involved key ministries responsible for education, reconstruction, poverty alleviation, youth development, women's affairs, and religious affairs. Discussions held with them focused on the current policies, the challenges faced in implementing them, and the opportunities for partnerships to bridge the digital divide.

This report provides an in-depth analysis of the insights gathered from each ministry and outlines the steps needed to ensure that digital services are accessible and beneficial to all segments of society.

1. Ministry of Education, Science, and Technology

The Ministry of Education, Science, and Technology plays a pivotal role in shaping the future of Borno State's youth by ensuring that they have access to digital tools and resources necessary for modern education. The ministry has been working diligently to align the state's educational standards with the national policy on digital education. This includes efforts to equip schools with computers, provide internet access, and integrate digital literacy into the curriculum.

However, the ministry faces significant challenges in resource allocation. Many schools, particularly in rural and hard-to-reach areas, lack the necessary infrastructure to support digital learning. The scarcity of funds has hampered the ministry's ability to fully implement its digital education policies. The Director of Science, emphasized the state government's commitment to overcoming these challenges but acknowledged that external support is crucial.

To address these issues, the ministry is seeking partnerships with private sector investors and international donors. By collaborating with these stakeholders, the ministry aims to enhance its capacity to provide digital education across all schools in the state. This would not only improve the quality of education but also ensure that students, including those with disabilities, are equipped with the skills needed to thrive in a digital world.

2. Ministry of Reconstruction, Rehabilitation, and Resettlement (MRRR)

The Ministry of Reconstruction, Rehabilitation, and Resettlement is central to Borno State's efforts to rebuild communities affected by conflict and displacement. A key part of the ministry's mandate is to ensure that all residents, including those who have been displaced, have access to digital services that can help them rebuild their lives. The ministry's focus on inclusivity is evident in its efforts to provide digital training to marginalized groups, particularly women and people living with disabilities.

Through partnerships with international organizations and NGOs, the ministry has facilitated a series of training programs aimed at bridging the digital divide. These programs are designed to empower participants with the skills needed to engage with digital platforms, access online services, and participate in the digital economy. The

ministry's approach is holistic, addressing not only the technical skills required but also the social and economic barriers that prevent full digital inclusion.

Despite these efforts, the ministry has identified significant gaps that need to be addressed. These include the lack of digital infrastructure in resettlement areas, limited access to affordable devices, and cultural barriers that discourage certain groups, particularly women, from engaging with digital tools. The ministry is calling for increased collaboration with private sector partners to address these challenges and ensure that digital inclusion is a reality for all residents of Borno State.

3. Ministry of Poverty Alleviation, Youth, and Sports

The Ministry of Poverty Alleviation, Youth, and Sports has a critical role in addressing the socio-economic challenges faced by the youth and other vulnerable groups in Borno State. The ministry has been actively involved in initiatives aimed at reducing poverty through digital empowerment. Recognizing the potential of digital tools to create economic opportunities, the ministry has launched several training programs focused on digital skills development.

The ministry's programs are designed to reach the most vulnerable segments of the population, including women, youth, and persons living with disabilities. By providing training in digital skills, the ministry aims to enable these groups to participate in digital-driven economic activities, such as e-commerce, digital marketing, and online freelancing. These initiatives are part of the ministry's broader strategy to reduce unemployment and promote economic self-sufficiency among the youth.

However, the ministry faces significant challenges in scaling these programs. The lack of infrastructure in rural areas, limited access to affordable internet, and cultural barriers continue to hinder the full participation of women and disabled persons in these programs. The ministry has therefore called for increased support from external partners, including the private sector and international donors, to expand these initiatives and ensure that no one is left behind in the digital age.

4. Ministry of Women Affairs and Social Development

The Ministry of Women Affairs and Social Development is at the forefront of efforts to address the digital gender divide in Borno State. Women, particularly in rural and conservative areas, face significant barriers to digital inclusion. These barriers include limited access to digital devices, cultural norms that restrict women's participation in public life, and a lack of digital literacy.

The Director of Social Welfare at the ministry highlighted the government's deliberate efforts to reach out to women at all levels and ensure their inclusion in the digital space. The ministry has been actively working to provide digital literacy programs tailored to the needs of women, with a focus on those in rural areas. These programs aim to

empower women by giving them the skills and confidence to engage with digital platforms, access online services, and participate in digital economic activities.

Despite these efforts, the ministry faces ongoing challenges. The digital gender divide is still evident, particularly in rural areas where cultural norms are more restrictive. The ministry is therefore advocating for more targeted interventions that address the specific needs of women in these areas. This includes working with local leaders to change perceptions about women's use of digital tools and collaborating with private sector partners to provide affordable devices and internet access to women in underserved communities.

5. Ministry of Religious Affairs

The Ministry of Religious Affairs has a unique role in shaping the cultural and moral landscape of Borno State. The ministry is fully aware of the complexities associated with digital platforms, particularly the potential risks and vices associated with social media. However, the ministry also recognizes the significant benefits that digital tools can offer, particularly in terms of education, communication, and economic participation.

The ministry is actively working to balance these concerns by promoting the positive aspects of digital inclusion while addressing the moral and ethical challenges associated with digital platforms. This includes collaborating with other ministries to facilitate sensitization and advocacy programs that educate the public about responsible digital use.

The ministry has also identified cultural barriers that limit women's access to digital platforms, often due to the belief that restricting access will protect their morals. The ministry is working to challenge these beliefs by promoting the idea that digital inclusion can be a positive force for women, allowing them to access educational resources, engage in economic activities, and participate more fully in public life. This effort is part of a broader strategy to promote a more inclusive digital culture in Borno State.

Action Pictures:

TL with Director Social Welfare MoWA

TL with Director Science MoEST

TL with DPRS Min. of Religious Affairs Sports

TL with DPRS Ministry of Poverty Alleviation Youths and

Appendix IV: List of Stakeholders

DESIGNATION AND ORGANIZATION				
S/N	**NAME OF RESPONDENT**	**MINISTRY OF YOUTHS AND SPORTS**	**PHONE**	**STATE OF RESIDENCE**
1.	Sadiq Moh'd Wakili	Director Planning/Research	07037575218	Borno State
2.	Babadogo Kachalla	Deputy Director Planning (Acting)	09062734333	Borno State
3.	Adama Sardauna	Planning Officer	0816677383	Borno State
4.	Abdullahi Gambo	Assistant Director Planning	08066222981	Borno State
S/N	**NAME OF RESPONDENT**	**MINISTRY OF COMMERCE**	**PHONE**	**STATE OF RESIDENCE**
1	Hajja Gaji Mustapha	Assistant Director /Planning	08065364820	Borno State
2	Hadiza Kachalla Yale	Deputy Director/Investment	07035961910	Borno State
S/N	**NAME OF RESPONDENT**	**MINISTRY OF RELIGION AFFAIRS**	**PHONE**	**STATE OF RESIDENCE**
1	Aliyu Alhaji Dauda	Director Planning	08061168620	Borno State
2	Falmata Bulakarema	Admin Officer	08030782063	Borno State
3	Usman Yahaya	Deputy Director Admin	08036711426	Borno State
4	Umar Ali	Director Admin	08036011870	Borno State
S/N	**NAME OF RESPONDENT**	**MINISTRY OF RELIGION AFFAIRS**	**PHONE**	**STATE OF RESIDENCE**
1	Aishatu Shettima	Director Social Welfare	08034387998	Borno State
2	Mustapha Bukar	Information Officer	0703731717	Borno State

S/N	**NAME OF RESPONDENT**	**BITCDA**	**PHONE**	**STATE OF RESIDENCE**
1	Gambo Mohammed	IT OFFICER	0813 7685554	Borno State
2	Engr. Abdul	IT OFFICER	08062367517	Borno State
S/N	**NAME OF RESPONDENT**	**SEMA**	P**HONE**	**STATE OF RESIDENCE**
1	Yahaya Bello	**DDPRS**	07038884158	Borno State
S/N	**NAME OF RESPONDENT**	**EDUCATION**	P**HONE**	**STATE OF RESIDENCE**
1	Motawalli Ahmed	Director of Science	08039775212	Borno State
S/N	**NAME OF RESPONDENT**	**INFORMATION TECHNOLOGY/ TELECOMMUNICATION**	P**HONE**	**STATE OF RESIDENCE**
1	Abubakar Onah	Information Technology (IT)	07030130700	Borno State
2	Shuaibu Audu	Information Technology (IT)	08097058211	Borno State
3	Falmata Kumshe	Information Technology (IT)	08032978420	Borno State
4	Yakubu Mallum	Information Technology (IT)	08069722324	Borno State
5	Mohammed Aminu	Information Technology (IT)	07067726780	Borno State
6	Umar Sheriff	Information Technology (IT)	07036900088	Borno State
7	Tijjani Yahaya	Information Technology (IT)	07087891550	Borno State
8	Abatcha Ali Abatcha	Information Technology (IT)	08039260390	Borno State
9	Ahmed Shettima	Information Technology (IT)	07060627300	Borno State
10	Suleiman Dauda Yusuf	Information Technology (IT)	09068962066	Borno State
11	Babagana Ali Umar	Information Technology (IT)	07066637090	Borno State
12	Abdullahi Sheriff	Information Technology (IT)	09064080705	Borno State
13	Ahmed Yakubu	Information Technology (IT)	09063550808	Borno State
14	Yakubu Muhammad	Information Technology (IT)	08082123200	Borno State
15	Abdulsalam Abba Aji	Information Technology (IT)	08160965791	Borno State

S/N	NAME OF RESPONDENT	P.O.S TERMINALS	PHONE	STATE OF RESIDENCE
1	Umar Muhammad Muh'd	P.O.S	07069008233	Borno State
2	Sadiq Yusuf	P.O.S	09037870526	Borno State
3	Yunus Audu Adamu	P.O.S	08132525859	Borno State
4	Nura Abdullahi	P.O.S	08036627491	Borno State
5	Musa Abubakar	P.O.S	08166008586	Borno State
6	Abubakar Jakana	P.O.S	08035141822	Borno State
7	Abdulhakim Bilal	P.O.S	08060701306	Borno State
8	Abubakar Mohammed	P.O.S	08038001007	Borno State
9	Musa Yawale	P.O.S	08062628677	Borno State
10	Mohammed Gana	P.O.S	09158714156	Borno State
11	Abubakar Haruna	P.O.S	07039085958	Borno State
12	Abdullahi Bunu Sheriff	P.O.S	08020831515	Borno State
13	Sani Abubakar	P.O.S	08032838071	Borno State
14	Maina Modu Kyari	P.O.S	08067579122	Borno State
15	Abubakar Muhammad Bako	P.O.S	08067660033	Borno State
16	Tijjani Rahis	P.O.S	08036193447	Borno State

S/N	NAME OF RESPONDENT	MRRR	PHONE	STATE OF RESIDENCE
1	Benwafi Muhammed	DPRS	0802 0618830	Borno State
2	Abdulhamid Tanko	ICT Officer	0703 5563530	Borno State
3	Alhaji Ali	ICT Officer	0806 8882465	Borno state

S/N	NAME OF RESPONDENT	Data center	PHONE	STATE OF RESIDENCE
1	Muhmmed saleh	DPRS	0803 6118641	Borno State
2	Rukkqayatu Ibrahim Wala	Lead Data Analyst (LA)	0806 8556015	Borno State
3	Safiya Idris Haruna	Lead Data Analyst (SE)	0802 9151555	Borno state
4	Isa Babale	Senior Data Analyst/MEAL Coordinator	0803 5357636	Borno State

S/N	NAME OF RESPONDENT	Yobe State	PHONE	STATE OF RESIDENCE
1.	Abdullahi Musa	Technical Officer – Yobe State Information and Technology Agency	07039079000	Yobe State
2.	Comrade Jajeri Ahmed	Assistant Director Planning Research and Statistic - Ministry of Humanitarian Affairs	07063163828	Yobe State
3.	Bello Musa	Desk Officer – Yobe State Ministry of Science and Technology	08122719910	Yobe State
4.	Musa Yunusa	Director Planning Research and Statistics – State Emergency Management Agency	08032078994	Yobe State
5.	Abubakar Sulaiman	Monitoring and Evaluation - State Universal Basic Education Board	08038500224	Yobe State
6.	Usman Amin	Desk officer - Basic Science and Technology Board	07037770592	Yobe State
7.	Yusuf Abubakar	Admin Officer – Ministry of Women Affairs and Social Development	08060214724	Yobe State

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