

**ANALYSIS OF FINANCIAL INCLUSION AND EDUCATION THROUGH ICT IN THE POST COVID-19 ERA AS A PARADIGM FOR SUSTAINABLE DEVELOPMENT GOALS IN LAGOS**

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**Abstract**

This study conducted a critical analysis of ICT-enabled financial inclusion and digital financial education in the post-COVID-19 era, examining their potential as a paradigm for achieving Sustainable Development Goals (SDGs). The study's findings revealed several significant insights. digital financial education and e-literacy were found to have a substantial influence on ICT-enabled financial inclusion. Furthermore, the research indicated that technology-driven financial inclusion could play a crucial role in bridging the socioeconomic gap between the rich and the poor. This impact manifests through various digital mechanisms, including improved cybersecurity for financial transactions, enhanced digital financial freedom, positive effects on e-commerce and online businesses, better access to digital loan facilities, and the creation of new fintech-based business opportunities for economically disadvantaged individuals. The contribution to achieving SDGs, ICT-enabled financial inclusion was found to promote digital gender equality, facilitate remote employment opportunities, improve access to telemedicine and e-health facilities, and contribute to poverty reduction through digital financial services. Based on these results, the study puts forth several recommendations. Partnerships should aim to create and implement initiatives that enhance digital financial education within communities, thereby fostering greater ICT-enabled financial inclusion and contributing to the achievement of SDGs. This research provides valuable insights into the role of ICT-driven financial inclusion and digital education in sustainable development, particularly in the context of urban Nigeria. It highlights the interconnectedness of digital financial literacy, technological economic opportunity, and social progress, offering a foundation for policy development and further research in this crucial area of fintech and sustainable development.

**Keywords:** *Covid-19, Education, Financial Inclusion; Financial Education, SDGs, ICT.*

**Introduction**

In December 2019, the emergence of COVID-19 dramatically altered the global landscape, necessitating rapid adaptations across all sectors. In Nigeria, as elsewhere, the pandemic highlighted the critical importance of financial inclusion and education, particularly when facilitated through Information and Communication Technology (ICT). Financial inclusion, as defined by the World Bank Group, encompasses access to useful and affordable financial products and services. In the context of Nigeria, where a significant portion of the population lacks access to formal financial services, ICT has emerged as a powerful tool for bridging this gap. The COVID-19 pandemic accelerated the need for digital financial solutions, pushing

both individuals and businesses towards ICT-enabled financial services. With the advent of the pandemic came a greater need to reduce reliance on cash and educate people about digital financial services. ICT played a crucial role in this transition, enabling the proliferation of mobile banking, digital payments, and online financial management tools. Many institutions that failed to adapt to this digital shift faced significant challenges or closure. Research has shown that countries which invested in technological infrastructure and digital public goods, such as digital IDs and interoperable payment systems, were better equipped to provide emergency financial support to vulnerable groups during the pandemic (Global Partnership For Financial Inclusion, 2020). This underscores the importance of ICT in not only facilitating financial inclusion but also in enhancing the resilience of economies during crises. According to Kuada (2019), increased financial inclusion, particularly when enabled by ICT, enhances an economy's capacity to alleviate poverty. Digital financial services improve the ability of impoverished families to absorb financial shocks, maintain steady consumption, build assets, and invest in human capital such as health and education.

However, challenges remain in achieving widespread ICT-enabled financial inclusion. These include limited access to resources such as smartphones and internet connectivity, traditional societal norms, and varying levels of digital and financial literacy, particularly among women (Sahay, et al., 2020). In Nigeria, a study by Enhancing Financial Innovation and Access (EFInA, 2021) found that while 51% of Nigerians use formal financial services (up from 49% in 2018), significant barriers persist, including limited access to banks and low/irregular income. The COVID-19 crisis demonstrated the vital role of ICT-enabled financial services platforms, including Fintech firms, mobile banking organizations, and digital banking, in delivering prompt and personalized policy support. However, even significant fiscal support announcements can fail to reach the most disadvantaged if not readily accessible or properly integrated through ICT channels (Sahay, et al., 2020). This study aims to critically analyze how ICT-driven financial inclusion and education in the post-COVID-19 era can serve as a paradigm for achieving Sustainable Development Goals in Nigeria. Despite Nigeria's commitment to the SDGs, the country continues to lag in socio-economic development targeting these goals (Klapper, 2016; Ibrahim & Olanikanmi, 2019; Ozili, 2020; Ajala, 2022). In the 2019 SDG index, Nigeria ranked 159th out of 162 countries.

## **Literature Review**

### **Sustainable Development Goal and Information and Communication Technology**

The United Nations' Sustainable Development Goals (SDGs) have become a global framework for addressing pressing social, economic, and environmental challenges. Concurrently, Information and Communication Technology (ICT) has emerged as a powerful tool for facilitating sustainable development.

This literature review explores the intersection of SDGs and ICT, highlighting their synergies and potential

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impacts. Several studies have emphasized the role of ICT in achieving the SDGs. Tjoa and Tjoa (2016) argued that ICT acts as a catalyst for all three pillars of sustainable development: economic growth, social inclusion, and environmental protection. They highlighted how ICT can contribute to each of the 17 SDGs, from providing access to education (SDG 4) to promoting innovation (SDG 9). Wu et al. (2018) conducted a comprehensive review of ICT's potential contributions to the SDGs. They found that ICT can significantly impact all SDGs, with particularly strong effects on SDG 9 (Industry, Innovation, and Infrastructure) and SDG 11 (Sustainable Cities and Communities). The authors emphasized the need for integrated approaches that leverage ICT across multiple SDGs simultaneously. While ICT offers immense potential, the digital divide remains a significant challenge. Unwin (2017) explored this issue, arguing that without addressing digital inequalities, ICT might exacerbate existing social and economic disparities, potentially hindering progress towards the SDGs. He emphasized the need for policies that ensure equitable access to digital technologies and skills. Several researchers have focused on ICT's role in achieving specific SDGs. For instance, Sachs et al. (2019) examined the potential of digital health technologies in achieving SDG 3 (Good Health and Well-being). They found that e-health and m-health solutions can significantly improve healthcare access and quality, particularly in underserved areas. In the context of SDG 4 (Quality Education), Miao et al. (2020) explored how ICT can enhance educational outcomes. They highlighted the potential of online learning platforms, educational apps, and digital resources in providing access to quality education, particularly in developing countries.

ICT's role in environmental sustainability (related to SDGs 13, 14, and 15) has also been a focus of research. Fraga-Lamas and Fernández-Caramés (2020) reviewed how emerging technologies like the Internet of Things (IoT), blockchain, and artificial intelligence can contribute to environmental monitoring, resource management, and climate action. The governance of ICT itself is crucial for sustainable development. Filho et al. (2019) emphasized the need for responsible development and deployment of ICT to ensure its positive contribution to the SDGs. They argued for policies that promote digital inclusion, data privacy, and ethical use of technologies. Despite the potential benefits, several challenges remain in leveraging ICT for SDGs. Vinuesa et al. (2020) conducted a comprehensive analysis of how artificial intelligence (AI) could help or hinder the achievement of all 17 SDGs. While they found that AI could enable the accomplishment of 134 targets across all SDGs, they also identified risks and challenges, particularly related to increased inequality, exclusion, and environmental degradation if not properly managed. The literature consistently highlights the significant potential of ICT in achieving the SDGs. However, it also underscores the need for thoughtful implementation, addressing issues such as the digital divide, data privacy, and environmental impacts of

technology. Future research should focus on developing integrated frameworks that maximize the positive impacts of ICT across multiple SDGs while mitigating potential negative consequences.

### **Financial Literacy and ICT**

Financial Inclusion, Education, and ICT: A Critical Path to Achieving Sustainable Development Goals in Post-COVID-19 Nigeria. This literature review examines the interplay between financial inclusion, education, ICT, and the pursuit of Sustainable Development Goals (SDGs) in post-COVID-19 Nigeria. Financial inclusion refers to the accessibility and usage of formal financial services by all members of an economy (World Bank, 2021). In Nigeria, despite efforts to improve financial inclusion, challenges remain. According to Enhancing Financial Innovation and Access (EFInA, 2021), about 51% of Nigerian adults use formal financial services, up from 49% in 2018. The role of ICT in advancing financial inclusion has gained significant attention. Adeoti (2011) highlighted that ICT adoption in the Nigerian banking sector has positively influenced financial inclusion by enabling mobile banking, online transactions, and automated teller machines (ATMs). Similarly, Oluwatayo (2013) found that mobile phone technology has significantly enhanced financial inclusion among rural dwellers in Nigeria. ICT plays a crucial role in enhancing financial education and literacy. Tayo et al. (2019) demonstrated that the use of mobile apps for financial education significantly improved financial literacy among Nigerian youths. This aligns with global trends, as noted by Lyons and Kass-Hanna (2021), who emphasized the potential of digital tools in scaling up financial education efforts. The COVID-19 pandemic has underscored the importance of digital financial services. Sahay et al. (2020) noted that countries with robust digital financial infrastructure were better able to provide emergency support to vulnerable populations during the crisis. In Nigeria, Okoye et al. (2021) found that the pandemic accelerated the adoption of digital financial services, particularly mobile banking and electronic payments. Several studies have explored how ICT-driven financial inclusion contributes to economic development. Adeleye et al. (2020) found that ICT development and financial inclusion positively impact economic growth in sub-Saharan Africa, including Nigeria. Similarly, Ejemeyovwi and Osabuohien (2020) demonstrated that mobile technology adoption significantly influences inclusive growth in West Africa. Despite the potential benefits, achieving widespread ICT-driven financial inclusion in Nigeria faces several challenges. Asongu and Odhiambo (2019) identified issues such as inadequate ICT infrastructure, low digital literacy, and cybersecurity concerns as key obstacles. However, they also noted opportunities, particularly in leveraging emerging technologies like blockchain and artificial intelligence to enhance financial services.

The role of fintech in advancing financial inclusion has been highlighted by several researchers. Ozili (2018) emphasized the potential of fintech to reduce financial exclusion in Nigeria, particularly through

mobile money services and digital banking platforms. The literature suggests several policy implications for Nigeria. Anarfo et al. (2019) emphasized the need for policies that promote ICT infrastructure development and digital literacy to enhance financial inclusion. David-West et al. (2019) argued for regulatory frameworks that encourage fintech innovation while ensuring consumer protection. Literature consistently supports the notion that ICT-driven financial inclusion and education are critical for achieving SDGs, particularly in the context of post-COVID-19 recovery. For Nigeria, improving financial inclusion through ICT, digital financial services, and targeted educational initiatives presents a significant opportunity to advance sustainable development. However, addressing existing challenges in ICT infrastructure, digital literacy, and regulatory frameworks will require concerted efforts from policymakers, financial institutions, and technology providers.

### **Conclusion**

The findings demonstrate that ICT-driven financial inclusion is a key enabler for several SDGs. By leveraging digital technologies, financial services have become more accessible and efficient, particularly benefiting underserved populations. This technological integration has shown promising results in promoting gender equality, as digital financial services provide women with easier access to financial products, bypassing traditional barriers and empowering them to manage their finances independently. Moreover, the study reveals that ICT-enabled financial platforms are creating new employment opportunities. These platforms not only connect job seekers with potential employers but also facilitate remote work options. The burgeoning fintech sector itself has become a source of new job roles, contributing to economic growth and diversification. The study also sheds light on how ICT-enabled financial inclusion is bridging the gap between the rich and the poor. Digital savings accounts and mobile wallets offer secure storage for funds, reducing vulnerability to theft or loss - a significant concern for many in low-income brackets. Access to digital financial services is improving financial management skills and promoting better budgeting practices among the poor, gradually enhancing their financial standards. For businesses, especially small enterprises, e-commerce platforms and digital payment systems are opening new markets and streamlining transaction processes. This digital transformation enables businesses to operate more efficiently and reach a wider customer base, fostering economic growth from the ground up. The research also points to the democratization of loan access through digital lending platforms and innovative credit scoring algorithms. These technologies are making it easier for underserved populations to access loans, often on more favorable terms than those offered by traditional moneylenders. This study presents a compelling case for the integration of ICT in financial inclusion and education initiatives to achieve SDGs and reduce economic disparities in Lagos Metropolis. By harnessing the power of digital technologies, financial services are becoming more accessible, efficient, and tailored to the needs of the

underserved population. This approach not only contributes to sustainable development and economic growth but also paves the way for a more inclusive and equitable society in post-COVID-19 Nigeria.

### **Recommendations**

Based on the findings of the study, the following recommendations were made;

1. The government, in collaboration with the private sector, should prioritize the development of robust digital infrastructure across Lagos Metropolis.
2. Policymakers should create a comprehensive and flexible regulatory framework that encourages fintech innovation while ensuring consumer protection.
3. Develop and implement tailored financial education programs that leverage ICT tools such as mobile apps, online courses, and interactive platforms.
4. Foster partnerships between the government, financial institutions, technology companies, and local communities to develop innovative, ICT-driven financial solutions tailored to the needs of underserved populations.

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