WEST AFRICAN JOURNAL ON SUSTAINABLE DEVELOPMENT

DIASPORA–LED TECHNOLOGICAL INNOVATIONS AND DIGITAL TRANSFORMATION IN AFRICA: INVESTIGATING THE CONTRIBUTIONS TO TECHNOLOGICAL ADVANCEMENTS AND DIGITAL TRANSFORMATION IN FINANCE AND TELECOMMUNICATIONS FOR SUSTAINABLE DEVELOPMENT

[1]Abagen Franc Ter (PhD), [2]Ochi Ijeoma Brigid

[1]Department of Political Science, Benue State University, Makurdi, Benue State

[2]Department of Political Science, Nnamdi Azikiwe University, Awka, Anambra State

[1]fabagen@bsum.edu.ng, [2]ib.ochi@unizik.edu.ng,

Abstract

Amidst the global technological boom, Africa is experiencing a profound digital transfiguration and significant developments in the finance and telecommunications sectors; a transformative shift which can unarguably be said to have been propelled by Africans in the diaspora. This paper unearths the significant contributions made by African diaspora in fostering technological and digital transformation, particularly within the finance and telecommunication sectors. The influence of these diaspora-led innovations are not just reshaping the landscape of Africa's economic sectors, but also facilitating sustainable development. By employing qualitative methodology, the study draws attention to the diaspora's significant impact in helping Africa leapfrog technological boundaries. Using the diffusion of innovation theory, this investigation argues that diaspora engagement encourage technological innovation – ultimately promoting sustainability and development. However, despite these impacts; challenges such as limited technological knowledge, regulatory barriers and poor infrastructure persist. Based on the findings, this research recommends developing policies focusing on intensifying diaspora engagement to further enhance technological development, digital transformation, and sustainable development. By demonstrating the practical implications of these contributions, this paper endeavours to underscore the need for harnessed diaspora involvement to optimize future opportunities for digital transformation and sustainable development in Africa. It also underscores the need for drastic measures to address cyber-threats associated with financial and telecommunications industries and digital transformation.

Key words: Diaspora- led technological innovations, digital transformation in Africa, finance, telecommunications and sustainable development.

[1]Abagen Franc Ter (PhD), [2]Ochi Ijeoma Brigid

Introduction

In recent years, the vibrant expanse of technological innovation has been evidenced globally with the burgeoning digital sphere demonstrating significant transformations in numerous sectors. Africa, a continent often overlooked within digital revolution is actively creating waves, more specifically, the diaspora-led technological advancement and digital change in finance and telecommunications sectors have been a key contributor to Africa's sustainable development. Thus, in a continually evolving global landscape where technology serves as an accelerating drive, the African continent has taken profound strides in harnessing the transformative power of digital technologies. As diaspora populations include individuals with skills, knowledge, and experiences that are internationally seasoned, they contribute to technological knowledge, innovations, and development in their home countries (Nkongho, 2018). This international exposure builds a bridge, transposing technological advancements and ideas from the global north to Africa (Ackah & Utecht, 2003). Such technological diffusion has paved the way forward for some of the continent's most innovative digital landscapes. Financial and telecommunication sectors exemplify the domains where such diaspora contributions have led to digital transformation. Innovations like M-Pesa, a mobile transfer system, and the transformative strides in Fintech are examples of how technology can impel financial inclusivity and sustainability (Demombynes, 2020). Fintech firms have played a fundamental role in supporting the United Nation's Sustainable Development Goals (SDGs). These goals set forth a blueprint aimed at building an inclusive, sustainable, and resilient future for people and the planet (UN, 2015).

In telecommunications, both infrastructural progress and service innovations, driven by the diaspora, have trancended boundaries and fostered socio-economic development.

This paper explored the dynamic diaspora-led technological innovations and digital transformations in Africa, particularly in the realms of finance and telecommunications. Probing into the remarkable contributions from the African diaspora, we looked into the fostering of sustainable development , the challenges encountered and the underpining potential of the continent's diigtal economy.

Conceptual clarification

Diaspora – led technological innovations

The African diaspora refers to the communities throughout the world that have resulted from the movement of people from Africa (Carling, 2005). Defined as the dispersion of a population from their origin to their new homeland, diaspora constitutes a vital driver of global technological advancement due to their diverse experiences and exposure (King & Christou, 2011). Within the

tapestry of experiences abound in these communities, technological innovation, as manifested in digital platforms, contribute significantly to the achievement of the United Nations Sustainable Development goals (UN SDGs). Numerous technological innovations originating from the African diaspora have been influential in reshaping the continent's technological landscape. For example, fintech startups like flutterwave, paystack, and Blaze were founded by members of the African diaspora.

Digital transformation in Africa

This refers to the profound modification of business activities, processes, and competencies enabled by digital technologies. This transformation ranges from e-commerce, digital banking, to digital education systems. Africa's digital transformation journey, spearheaded by diaspora-led innovations, has exerted a substantial influence on the finance and telecommunication sectors.

Finance

The finance sector, loosely regarded as the backbone of an economy, pertains to a broad category that describes activities related to banking, leverage or credit, capital markets, money, and investments.

Telecommunication

This sector constitutes companies that make communication possible globally through the phone or the internet, wired or wirelessly

Sustainable development

This is defined by the United Nations (UN) as the organising principle for meeting human development goals while simultaneously sustaining the ability of natural systems to provide the natural resources and ecosystem services upon which the economy and societies depend (UN WCED, 1987).

Theoretical framework

The landscape of Africa has seen a shift in recent years, partly fuelled by dispora-led technological innovations, with an expanding influence on the finance and telecommunications sectors. This paper is anchored on the Diffusion of Innovation theory. The theory emphasises the process thrrough which an innovation is communicated through certain channels over time among members of a social

system (Rogers, 1962). In Africa's finance sector, the diaspora-led technological innovation that illustrates the diffusion of innovations theory is the proliferation of mobile-based financial services, directly challenging the conventional banking system. Research indicates that diaporas serve as formidable agents for diffusing technology adoption (Gupta, 2018; Ratha et al, 2011). M-Pesa, a mobile phone-based money transfer service illustrates this notion efficiently. Invented by Vodafone Group PLC, led by a team of diaspora innovators, M-Pesa has transformed finance in Kanya by democratizing access to financial services (Vodafone Group PLC, 2007). Since its introduction , M-Pesa rapidly diffused and is now integral to many Africans' lives, fitting Rogers' (1962) Diffusion of Innovations Theory.

In the telecommunications sector, mobile proliferation in Africa presents an ideal case study. Mobile services adoption in Africa has exceeded all expectations, with diaspora players central to these developments. Their contributions span across infrastructure advancements, service provision, and app development, echoing the facets of the Diffusion of innovations theory. The diasporas catalyse processes to innovate and re-purpose traditional services and, galvanise adoption, fostering a digital transformation across Africa (Aker & Mbiti, 2010).

A clear evidence of the relevance of this theory can be seen in Andela's inception, a tech company started by Nigerian and American diaspora entrepreneurs. They employed a unique model of software development and provided Africans with high-tech jobs, disrupting the conventional ICT landscape. Their adoption and popularity among the African tech community underscores a succesful application of the diffusion of innovations theory (Andela, 2020). Also, yegomoto, a Rwanda – based company founded by the diaspora, utilises IoT (Internat of Things) technology to pioeer an innovative metre system for motorcycle taxis (Musoni, 2018)

One cannot discusss technological tarnsformation without acknowledging its impact on sustainable development. According to the World Bank (2016), digital technology plays a critical role in achieving the sustainable development goals. The advent and penetration of digital tech advancements in Africa, largely driven by diaspora inventor, have facilitated access to information, increased financial inclusion, improved accountability, and fostered innovation – all imperative to sustainable development as stated in the UN SDGs.

In conclusion, this theory provides vivid understanding of the process through which these innovations transform Africa's socio-economic landscape, with remarkable influences on sustainable development.

© 2023 West African Journal on Sustainable Development (WAJSD) 2024, Vol. 1 (Issue 2), 120 - 132
ISSN (ONLINE): 3026-8923

Contributions of the African diaspora to technological advancements and digital tranformation: a focus on finance and telecommunication industries for sustainable development

Sustainable development has increasingly pivoted upon technological advancements in digital transformation, particularly in finance and telecommunication sectors. Over the years, the African diaspora has made invaluable contributions to technoogical progression in these fields. The African diaspora consists of people of African origin living outside the continent, underscoring their roles as change agents for development within the region (Nadeau, 2016). These individuals have played a vital role in driving technological advancements in both finance and telecommunciations that foster sustainable development.

Arguably, the most tangible manifestation of the diapora-led digital transformation is in Africa's financial sector. Migration has allowed the African diaspora to access a wide range of financial products and services that have spurred the growth of innovative financial technology known as 'fintech'. A key examplar of this is the development of blockchain and cyrocurrencies, which have revolutionalised the way monetary transactions are carried out globally, notably in remittances (Mavere, 2019). Approximately 70% of cross-border transactions to Africa are remittances, a significant portion being channelled to Sub-Saharan Africa, and largely contributed by the African diaspora (World Bank, 2020). Blockchain – based remittance systems like BitPesa founded by a member of the diaspora, Elizabeth Rossiello, have greatly reduced the cost of money transfers, opening doors for massive potential investments (Ndemo and Weiss, 2017). Bitpesa was founded in November 2013 with its headquarters in Nairobi, Kenya and other offices in Lagos, Luxembourg, London, Dakar and Madrid. Its beta site was launched by the end of May, 2014. This however allowed users to send money to any mobile money wallet in Kenya and by December 2014 ending, customers in Kenya could buy bitcoins on the platform. In other years, Bitpesa was launched in other countries; Tanzania in May 2015, Nigeria and Uganda in November, 2015 and Ghana in March, 2018. (https://bitcoinwiki.org/wiki/bitpesa).

Bitpesa bridges traditional finance-technology gap using Bitcoin technology (BitPesa, 2021). This unique digital solution transforms the way Africans comprehend and manage their finances, contributing tangibly to the SDGs. The substantive contribution of BitPesa to SDG 1 (No poverty) is the provision of affordable financial services. Bitpesa's innovation empowers Africans with ease, low cost access to monetary transactions globally. This effectively negates exploitative practices

from traditional financial institutions, creating economic empowerment. Reducing poverty levels, and contributing to direct foreign investments. BitPesa impacts SDG8 (Decent work and Economic growth) by enabling businesses o expand to international landscapes without the constraints of exorbitant money transfer charges, providing a stimulus for growth (2020). Economic growth spurred by BitPesa facilitates job creation, fostering economic stability, decentralising wealth, and promoting decent work. The diaspora-led BitPesa also fosters financial inclusion (SDG 10: Reduced inequalities). By making fknancial services accessible to underserved populations, it provides economic opportunities ordinarily unavailable, thereby lessening economic disparities (2016).

Moreover, BitPesa contributes to SDG9 (Industry, Innovation and Infrastructure) through its innovative financial solutions. By leveraging bitcoin technology, BitPesa provides an infrastructure that fosters innovative practices, enabling adding value to the financial industry in Africa (2017). BitPesa underscores the power of the diaspora for sustainable development (SDG 17: Partnerships for Goals). It exemplifies how diaspora-led initiaives can drive growth, innovation and development not just within continental borders, but on the global stage, fostering a sense of global parnership (2019).

Also, mobile money platforms such as M-Pesa, established by diaspora-returnees, have revolutionalised financial inclusivity in Africa, unlocking access to millions previously unbanked. M-Pesa became a ground breaking enterprise in Kenya, leading the way to the path of less-cash economies (Villasenor, West, & Lewis, 2016). This mobile payment system has revolutionised not only Kenya, but has had ripple effect in global sustainable development (Bretton, 2020). Coupling its financial inclusivity approach and its commitment to the United Nations' Sustainable Development Goals (SDGs), M-Pesa has transformed a legion of lives in the communities it operates (Kendall, 2020). From urban centres to the heart of rural areas, this ingenious invention has blurred the lines of economic disparity, reaching approximately 20 million users as of 2016 (Bretton, 2020). The role of M-Pesa in advancing the UN SDGs- an agenda aimed at eradicating poverty, improving healthcare and education, and boosting economic growth, among other objectives has been profound. By tuning into the heartbeat of inclusivity, it underscores SDG 1 (No poverty) and SDG 8 (Decent work and Economic Growth). M-Pesa provides individuals with a flexible, accessible, and reliable platform for financial transactions, thus alleviating economic hardships and creating more job opportunities (Natukunda et al., 2020). Specifically, M-Pesa's savings and loans services has made a significant stride in promoting SDG 1. It has become a tool for Kenyans to save money securely and access credit facilities, enabling them to invest, meet daily needs, and cushion against

financial shocks. Research indicates that M-Pesa users have successfully lifted themselves out of poverty, justifying its alignment with the goal of poverty reduction (Suri and Jack, 2019). To better illustrate, in the context of SDG 8, which champions decent work and economic growth, M-Pesa has empowered job creation avenues such as M-Pesa agent networks. They provide direct and indirect employment for numerous citizens, thus contributing to economic growth (World Bank, 2019). Through partnerships with healthcare providers, M-Pesa aids SDG 3 (Good Health and Well-being). Its utilsation for healthcare transactions enables users to access medical insurance, signifcantly increasing healthcare reach in rural areas (Kendall, 2017). M-Pesa offers a pragmatic model for using digital finance to drive sustainanble development.

Similar diaspora-led initiatives have spurred the creation of other platforms like flutterwave and paystack, contributing immensely in revolutionalising the African digital economy. Flutterwave and paystack have not only improved the financial inclusion rate but also supported the United Nations' Sustainable Development Goals (SDGs) in Africa (United Nations, 2015). Flutterwave and Paystack two trailblazing fintech companies, have challenged the status quo by developing transcendent frameworks that address the United Nation's Sustainable Development Goals (Ellis et al., 2010). Flutterwave has empowered businesses in Africa through the development of innovative payment technologies. This fintech firm has fostered financial inclusion by providing a digital platform that enables businesses of all sizes to expand their operations beyond local borders (Antonowicz, 2016). This vision aligns with SDG Goal 9 (Industry, Innovation and Infrastructure) and Goal 8 (Decent work and Economic growth). Moreover, flutterwave's infrastructure allows for more rapid and cheaper transactions, driving economic growth and indirectly tackling poverty-reduction (SDG Goal 1). By stimulating increased trade and financing for poor households, it is poised to make significant strides towards finding a sustainable solution to poverty (Lin & Chen, 1999).

Similarly, Paystack, another innovative fintech firm in Africa, has leveraged technology to not only facilitate payments but also devise sustainable models for managing and monitoring transactions. With its robust payment gateway, payment has essentially improved the efficiency and transparency of business processes (Nwankwo et al., 2016). By doing so, it has contributed actively towards achieving SDG 12 (Responsible consumption and production). Beyond its role in promoting responsible economic growth, Paystack has pioneered financial accessibility for the unbanked through collaborations with various institutions. Thus, in its way, Paystack indirectly supports SDG

Goal 10 (Reduced inequalities) by helping bridge the financial gap among underserved populations (Nubuko, 2017).

In the grand scheme of Africa's sustainable development, Flutterwave and Paystack are not merely fintech companies; they are drivers of a robust, integrated progress towards the United Nation's Sustainable Development Goals. Their digital payment platforms have leveraged the potential of modern technologies to contribute to economic empowerment, financial inclusion and the promotion of reponsible and inclusive businesses in Africa. Through their innovative approaches, these companies highlight the essence of digital financial services in achieving the SDGs. Thus, their contributions represent the vitality of technological innovation as a tool for achieving sustainability in Africa. By so doing, both companies set the stage for the role of digital technology in meaningful socio-economic transformation – a role that is gaining credence as Africa charts its path towards sustainable development.

In essence, Flutterwave and Paystack's contributions to sustainable development in Africa verify the role that private sector innovation can play in realising SDG's overarching vision. They have fostered eeconomic and social access. By affording Africans a secure, accessible, and streamedlined method of performing transactions irrespective of their location, they facilitate inclusive growth and accelerate African's integration into the global economy.

Also, Blaze, a diaspora-led enterprise has crafted economic inclusivity through their financial services. Their financial solutions have served as stepping stones for unbanked Africans, enabling them to leverage digital banking platforms for transactions. Blaze's finacial inclusion strategy is congruent with Demombyne's (2013) argument that digital technology can vastly shrink the financial exclusion gap in African countries. In Kenya, for instance, the Blaze BYOB (Be your own boss) initiative ushered in a new era of entrepreneurship, equipping emerging buiness moguls with the tools they need to succeed in the global market.

Similarly, the telecommunication sector has witnessed significant transformations catalysed by members of the African diaspora. Telecommunication tools have grown from basic telegraphy to full-scale digital systems through advancements in software development, driven largely by African engineers and innovators domiciled outside their country (Mutula, 2018). An example of such developments is the creation of virtual meeting and conferencing tools. Etop Ikpe, a Nigerian engineer who founded Autochek Africa while in the diaspora, developed a platform enabling virtual

car inspections for potential African buyers, addressing the shortfall in physical vehicle inspections in the region (Devex, 2021).

Moreover, the African diaspora has encouraged knowledge transfer in the tech industry through mentorship and tech boot camps for youthful aspirants back home. 'Andela', founded by Jeremy Johnson, Christiana Sass, and Nigerian software developer, Iyinoluwa Aboyeji, has addressed the gap in local tech talents, building a pool of software developers who continue to shape the telecommuication sector.

In addition, Funke Opeke, an African diaspora transformed Nigeria's telecommunications landscape with Mainone, a leading provider of telecom services and network solutions in West Africa (The Founder, 2020). Equally significant is Elon Musk, a native South African, whose company, SpaceX, provides affordable internet access in distant African regions via satellite technology (Sheetz, 2019). These founders and their companies play a vital role in facilitating economic, social, and environmental sustainability in Africa, thus revolutionising global telecommunications and supporting the achievement of the UN SDGs, specifically of Goal 9: Industry, Innovation and Infrastructure (Forbes, 2021).

Another prime example of African diaspora-led innovation is Blaze, a youth network by Safaricom. Blaze, is a platform that empowers the youth by providing data bundles, voice and SMS plans, mentorship, and creation camps to foster individual growth. This platform serves as an avenue for young people to realise their potential, thus, fulfilling goals of Quality Education (SDG4) and Decent work and Economic Growth (SDG8) as well as reduced inequalities (SDG10). It is an innovative platform that has transcended boundaries by reshaping the telecommunications industry, improving accessibility and service quality across Africa. It utilises the power of communication technology to not only provide a platform for conversation and networking but also to equip the youth with an understanding of how to effectively harness technology. Thus, it has created an environment where learning is promoting understanding of technology use. As delineated by the International Telecommunication Union (2020), such initiatives reflect digital inclusion, principally SDG9 that prioritises building resilient infrastructure, promoting inclusive and sustainable industrialisation, and fostering innovation. Blaze provides the youth with employment opportunities. Technological innovation, as exemplified by Blaze, plays a significant role in the African diaspora's contribution to the achievement of the UN SDGs.

Challenges

Nothwithstanding these achievements, diaspora-led technological innovation and digital transformation come with their own unique challenges such as limited technological knowledge, regulatory barriers and poor infrastructure. Technological innovations like blaze have unarguably democratized information and financial accessibility, yet, they pose challenges like data privacy and system vulnerabilities that need to be addressed.

Conclusion and Recommendation

In conclusion, the contribution of the African diaspora to technological advancements and digital transformation in finance and telecommunications is profound and continues to stimulate sustainable development. With continued innovations, mentorship, and knowledge-sharing, the diaspora engagement in these sectors can create an even greater positive impact on Africa's growth trajectory. There is need therefore for proper regulation and policy implementation to safeguard the digital revolution's trailblazing benefits. The research also recommends developing policies focusing on intensifying diaspora engagement to further enhance technological development, digital transformation, and sustainable development. There is also need for drastic measures to address cyber-threats associated with financial and telecommunications industries and digital transformation.

References

Aker, J.C., & Mbiti, I. M. (2010). Mobile phones and economic development in Africa. Journal of Economic perspectives, 24(3), 207-32. https://pubs.aeaweb.org/doi/pdfplus/10.1257/jeb.24.3.207

Andela. (2020). About Andela: Mission and values. https://andela.com/about

Bitcoinwiki, (2023). BitPesa https://bitcoinwiki.org/wiki/bitpesa

Blaze, (2020). How the African Diaspora are driving the digital revolution. https://www.blaze.org.uk/news/how-the-african-diaspora-are-driving-the-digital-revolution

Bretton, L. (2020). M-Pesa: Kenya's mobile money success story turns 10. https//www.cnn.com/2017/02/21/africa/mpesa-10th-anniversary/index.html

Demombyne, G. (2013). Information technology and financial services in africa. https://elibrary.worldbank.org/doi/abs/10.1596/978-0-8213-9491-0

Carling, J. (2005). The African Diaspora: Migration, modernity and transnationalism.

International Migration review. https://www.imi.-n.org/about/news/worldwide-disapora-groups-map

Devex, (2021). African diapora innovators building bridges. https://www.devex.com.news/sponsoed/african -diaspora-innovators-building-bridges-98799

Ellis, K., Lemma, A., and Rud, J. (2010).

Forbes, (2021). Elon Musk. https://www.forbes.com/profile/elon-musk/

International Telecommunication Union (2020). Measuring digital development. https://itu.int/en/ITU-D/Statistics/Pages/publication/mis

Kendall, J. (2020). From mobile money to fuinancial inclusion in Kenya. https://www.cgap.org/blog/mobile-money-financial-inclusion-Kenya

kendall, J. (2017). M-Pesa and the rise of the global mobile money market. https://www.ssir.org/articles/entry/m_pesa_and_the_rise_of_the_global_mobile_money_market

Lin, A. & Chen, N. (1999) https://link.springer.com/article/10.1023/A:1008971914416)

Mavare, T. (2019). Fintech in Africa: whats happening? https"//qz.com/africa/1566847/top-fin-tech-startups-in-africa-are-from-nigeria-south-africa-kenya

Mawere, M., & Mavhura, E. (2016). African philosophy and thought systems: A search for a culture and and philosophy of belonging .

Musoni, P. (2018). Case study: Yegomoto – Rwanda's smart transport system. African Business Magazine. https://africanbusinessmagazine.com/sector-focus/transport/case-study-yegomoto-rwandas-smart-transport-system/

Mutula, S. (2018). The role of African Diaspora in ICT development in Africa: Lessons and Experiences. https://ergodd.github.io/pdfs/diaspora%20and%20Tech.pdf

Nadeau, K. (2016). The role of the diaspora in development. https://www.1se.ac.uk?business-and-consultancy/consulting/assets/documentats/the role-of-the-diaspora-in-development.pdf

Natukunda, R., Katusiime, A. and Balamu, N. (2020). Harnessing digital technologies for the realisation of the SDGs in Uganda. https://www.undp.org/documents/technology-and-sdgs-case-adopting-mobile-money-healthcare-services-and-gender-issues.

Ndemo, B., & Weiss, T. (2017). Digital Kenya: An entrepreneurial revolution in the making. Palgrave Macmillan.

Nubuko, K. (2017). https://tandfonline.com/doi/full/10.1000/01436597.2017.1369037

Nwankwo, E., Onyido, T. & Ilechukwu, L. (2016). https://academic journals.org/journal/AJBM/article-full-text-pdf/48975DC5782

Ratha, D. & Shaw, W. (2007). South-south migration and remittances. World Bank. https://documents.worldbank.org/curated/en/2007

Sheetz, M. (2019). SpaceX's Starlink internet satellites. https://www.cnbc.com/2019/10/24.spacex-starlink-internet-satellites.html

Suri, T., and Jack, W. (2016). The long-run poverty and gender impacts of mobile money market. Science, 354 (6317). https://science.sciencemag.org/content/354/6317/1288

The Founder, (2020) Mainone. https://www.mainone.net/the-founder/

United Nations (2015). https://www.un.org/sustainabledevelopment/development-agenda/

Villasenor, J. West, D. M., & Lewis, R. (2016). The 2016 Brookings financial and digital inclusion project report

Vodafone Group PLC. (2007). The transformation of mobile phones in Kenya. https://vodafone-group-releases/articles/the-transformation-of-mobile-phones-in Kenya.html

World Bank (2020). World Bank predicts sharpest decline of remitances in recent history. https://worldbank.org/en/news/press-release/2020/04/22worl-bank-predicts-sharpest-decline-of-remittances-in-recent-history

World Bank (2019). Access to financial services and the identification revolution.: Lessons from Kenya. https://www.worldbank.org/en/news/speech/2018/03/28/makhtar-diop-access-financial-services-and- identification-revolution-lessons-from-Kenya

World Bank. (2016). Digital dividends. World Development Report. https://documents.worldbank.org/curated/en/896971468194972881/2016-world-development-report-digital-dividends