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DIGITAL INNOVATION AND POVERTY ALLEVIATION IN SUB-SAHARA AFRICA

Oluwasegun Abraham Solaja[1], Ola Olusegun Oyedele[2], Abolaji Joachim Abiodun[3], Oluwapelumi John Olajugba[4], Oghenefejiro Edewor[5], Omobolanle Omotayo Solaja[6], Faith Tobiloba Akerele[3]

[1] Center for Entrepreneurship & Leadership Development Studies, Chrisland University, Abeokuta
[2]Department of Entrepreneurial Studies, College of Entrepreneurial & Development Studies, Federal University of Agriculture, Abeokuta
[3]Department of Business Administration, College of Entrepreneurial & Development Studies, Federal University of Agriculture, Abeokuta.
[4]Smith School of Business, Queen's University.
[5]Department of Business Management, College of Management and Social Sciences, Covenant University.
[6]Ernst & Young Global Limited.

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ABSTRACT

Poverty has implications for economic growth and people's welfare. The United Nations set 17 Sustainable Development Goals for which Poverty is at the center with the remaining 16 Goals dependent on the achievement of the first Goal which is poverty eradication. Countries in Sub Sahara Africa are lagging behind in achieving sustainable development in the region. Literatures established that poverty level is concentrated in this region. The United Nations has indicated that countries in the region need to develop strategies to combat poverty in their region and the actualization of 17 Sustainable Development Goals. Digital innovation with the potentials for creating jobs with emerging technologies and enhance performance of SME holds attractive potentials in addressing the poverty issues, however, there is paucity of studies in this area. The present study aims to explore how digital innovation can be used as a veritable tool to alleviate poverty in Sub-Sahara Africa. The study employed a structured questionnaire to obtain data from six hundred and fifty-five (655) SMEs/Startups in five Sub-Sahara Africa countries. Data obtained were analyzed with the Structural Equation Model on R programming with the help of SEMinR package. The study found that digital innovation has significant effect on job creation and SMEs performance. The study suggested that digital innovation is a veritable tool that can be used in Sub-Sahara Africa region to alleviate poverty and improve economic growth which is crucial for the attainment of 17 Sustainable development Goals set by United Nations against the schedules target for 2030. It is evident that countries in the region need a policy focus that drive, facilitate and permeate digital innovation to achieve sustained poverty eradication initiative

Keyworks: Poverty, Innovation, Technology, Development, SMEs, Sub-Sahara Africa, Economic Growth, SDG

1. INTRODUCTION

Poverty is an issue of concern to national and international organizations with concerted efforts across nations at eradicating poverty. Wang, Chen, Hu, and shahid (2023) averred that national happiness is a function of poverty eradication; it is a vital task that must be accomplished nations to achieve sustainable development (Padmakanthi, 2023) and national happiness. Poverty is a major determinant of unsustainable development (Bossert et al., 2022). Poverty is a dis-incentive to sustainable development; it is therefore imperative for any country that desires to achieve sustainable development to get rid of poverty in their country. Poverty alleviation is a vocal point for achieving 17 sustainable development goals set by United Nations (Arejiogbe, et al, 2023), this suggests that the sustainable development agenda of the United Nations can only be achieved when the first goal which is poverty eradication is achieved along with other 16 agenda; hence, the reason for its placement at the center point of the 2030 Sustainability Development Goals (Spada, Fiore and Galati, 2023).

Ebong and Babu (2020) established that digital innovation drives economic growth via SMEs, it helps in enhancing SMEs performance and sustainability (Puriwat et al, 2021). Consequently, it which will empower businesses to support government in fighting against poverty via job creation, empowerment, increase in per capital income and market expansion. Despite the potential of digital innovation on economic growth and poverty eradication, countries in Sub-Sahara Africa are plagued with poverty as Kouadio and Gakpa, (2022) observed that majority of citizens in Sub-Sahara countries spends less than $2.15 daily which placed them in the extreme poverty line. There is a need to develop strategies to help countries in this region escape poverty as World Bank (2022) suggested that countries must be deliberate with the focus on eradicating poverty by developing adequate strategies to combat poverty. Studies affirmed the power of technology diffusion to alleviate poverty and harbinger economic growth (Pohjola, 2000; Dedrick et al, 2003; Cohen, 2010; Cordes and Marinova, 2023), can we advise countries in the Sub-Sahara Africa region to focus on digital innovation to escape poverty? Alimi and Adediran (2020) asserted that countries in the Sub-Sahara Africa region can experience economic growth with ICT adoption, it is imperative to understand how digital innovation can help these countries to alleviate poverty before recommendations can be made to countries in this region

There is a need for urgent policies and strategies that can be implemented in Sub-Sahara Africa to eradicate poverty in this region as suggested by World Bank (2023) that countries should have working policies to tackle poverty. The present study, therefore, seek to fill a gap in literature and provide empirical evidence from the Sub Saharan Africa on the link between digital innovation and poverty alleviation. To achieve this, the present study will proffer answers to understand the extent to which digital innovation affects job creation and know the level of influence digital innovation has on SMEs performance.

2. LITERATURE REVIEW

2.1 Digital Innovation

Innovation is a key factor that must be considered by any entity with the intention for growth and sustainable development, Scuotto et al (2022) believe small and medium-scale businesses can survive with the help of innovation especially in the technological epoch, it could be seen as an effective strategy that can be used to improve SMEs poverty and help them to operate effectively in an efficient way as Malodia et al (2023) described it as a top-notch strategy that SMEs to enjoy digital self-efficacy, Shaik et al (2023) supported this notion and averred that it is important for businesses to focus on innovation, especially in the digital

era, SMEs will position themselves to take advantages of opportunities when digital innovation is adopted (Liu, 2023). Digital Innovation could be seen as the deployment of technological tools to solve social problems, Achmad (2023) positioned that solutions can be proffer to problems facing our society with the help of digital innovation, Ren et al (2023) described poverty as a social problem which should be a matter of concern to citizens and not government alone (Abioro et al, 2019). Corvello et al (2023) established that the emergence of technology harbingered digital innovation which birthed new products, services and processes, with this, business operations can be improved Corvello et al (2023) argued that digital innovation is vital to achieve organizational success. With Digital Innovation, values are created (Wang et al, 2023) that will benefit society Kitsios and Kamariotou (2022) by solving social problems.

2.2 Poverty

Poverty is one of the major problems confronting the global village which requires urgent attention. According to Alkire and Fang, (2019), poverty occurs when an individual or family is unable to meet their basic needs, this need could be in the form of education, health, food, shelter, clothing, and security (Yang et al., 2021). World Bank (2022) defined poverty as a situation whereby an individual spends less than $2.15 daily and further averred that it is a global phenomenon but the rate in Africa is higher than in other continents in the world especially in Sub-Sahara Africa as Saidi et al (2023) opined that this region is the Centre for extreme poverty in the world which is evident in Global Multidimensional Poverty Index (MPI) published by the United Nation (2023) which shows that 534 million people out of 1.1 Billion people in Sub-Sahara Africa live in extreme poverty, Ayoo (2022) confirmed that the majority of countries in this region are in abject poverty.

2.3 Diffusion of Innovation Theory

In alignment with literature on innovation and technology, the theoretical foundation of this study is premised on a theory propounded in 1962 by Rogers which explains how innovation spread among people which is popularly known as the Diffusion of Innovation Theory (DOI), Rogers (1962) made an attempt to explain how innovation and technology spread in a particular system or a particular region, Akumbom, Egwu and Shillie (2023) opined that this framework can be used to divert innovation based on individual and region's need, they further stated that innovation will be saturated when the majority of individuals embrace it. Technology must be embraced first before such can benefit society as Criollo-C et al (2021) positioned that technology or digital innovation must be accepted first by a particular group of people before they can derive benefit associated with such technology yet in another study by Blut and Wang (2021), they study established that digital innovation can only be accepted based on the perceived benefit it offers.

In view of this, we intend to focus on how the diffusion of innovation can help countries in Sub-Saharan Africa combat poverty. To achieve this, we established the following hypotheses to anchor the study.

H1: Digital Innovation has no significant effect on job creation

H2: Digital innovation has no significant effect SMEs performance.

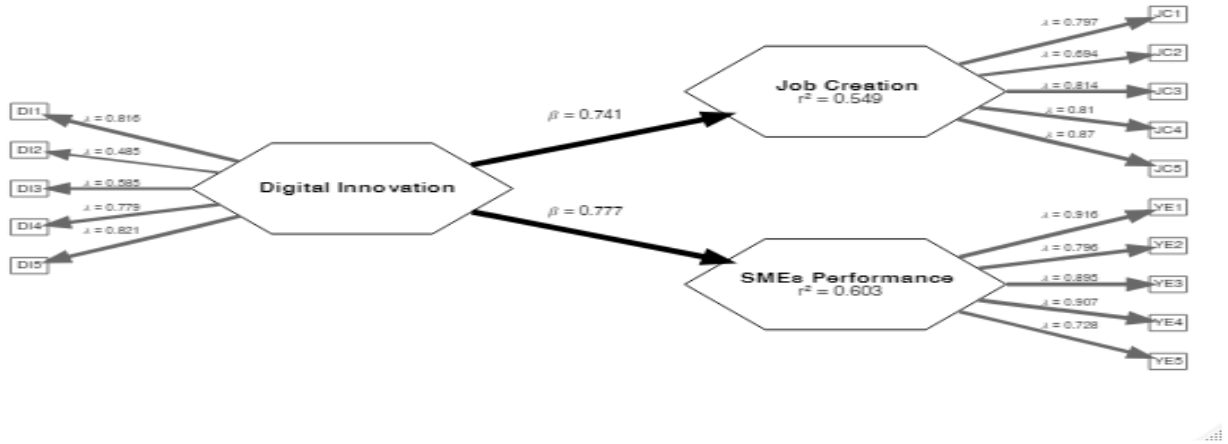

Fig1: The estimated Structural Equation Model.

3. Methodology

The present study adopts survey research, the study selected five different countries in the Sub-Sahara Africa region namely; Nigeria, Ghana, Benin Republic, Togo, and Niger Republic. Our motivation for these countries is premised on convenience in terms of accessibility to respondents in these countries. The study employed questionnaire to sample the opinions of business owners in this region during a month training organized for small and medium-scale business owners in the selected region on the adoption of technology in business operations. Attendees at this virtual training comprise of citizens of Nigeria, Ghana, Benin Republic, Togo, and Niger Republic. The population of the study comprises of business owners in Sub-Sahara Africa. A five Likert-scale structured questionnaire was designed and hosted online for accessibility, the research intention was discussed with the organizers via phone calls and Google Meet. Particpants were informed of the study by the organizer with an announcement on platform to seek freewill participation of the respondents. Participants further consent were obtained by explaining the purpose of the survey on the introductory rubric of the link and asking to click yes if they are willing to continue with the study or decline. A reminder was sent weekly by the lead author because of his presence on the platform due to his direct involvement as part of the facilitators in this program. After seven weeks, responses were retrieved for further analysis, out of eight hundred and forty-six (846) attendees who are on the platform, six hundred and eight nine respondents (689) attended the survey of which twelve (12) of them click decline voluntary participation in the study. Opinions of Six hundred and seventy-seven (677) respondents were exported to Microsoft Excel (2019) for data cleaning. We noticed similarity of responses from twenty-two (22) respondents and these were excluded from further analysis. The opinion of six hundred and fifty-five (655) respondents on their perceived relevance of digital innovation on poverty alleviation in the Sub-Sahara Africa region form the basis of analysis for the study. Analysis of data and test hypotheses raised in this study was done on SEMinR package in R programming to model the study via Structural Equation Modelling (SEM) this was anchored by the opinion of Loehlin and Beaujean (2016) that a minimum of 100 respondents are needed for SEM. The present study sampled six hundred and fifty-five (655) respondents which meet the criterion set by Loehlin and Beaujean (2016).

4. ANALYSES

Two hypotheses were developed to explore how digital innovation can be a veritable tool in the Sub-Sahara Africa region to alleviate poverty, enhance economic growth, and contribute to the actualization of Sustainable Development in this region. Structural Equation Model was used to test the hypotheses. Entries in Table 5 shows the result obtained from SEM to test the hypotheses. The estimate value indicates the relationship that exist between Digital innovation and Job Creation and SMEs performance. It shows that there is a positive relationship between digital innovation and job creation (74.15) and SMEs performance (77.7%), this relationship is significant with the t statistics of the tests at (35.759 and 56.527) which are greater than 1.96 which is the threshold suggested by Ghasemi and Zahediasl (2012). The first hypothesis regarding the effect of digital innovation on job creation shows R squared value of 0.549(54.9%) which implies that of variations that happens in job creation, digital innovation accounts for 54.9%, this shows that digital innovation has a significant effect on job creation.

Secondly, digital innovation also has a significant effect on SMEs performance with R squared value of 0.603(60.3%) which connotes that digital innovation explains 60.3% of variations in SMEs performance, T statistics is also greater than 1.96 with p value less than 0.05, it is save to state that digital innovation has a significant effect on SMEs performance.

5. DISCUSSION

The study explored the effect of digital innovation on poverty alleviation in Sub-Sahara African countries: Nigeria, Ghana, Niger Republic, Benin Republic and Togo. The purpose was to understand how emerging technologies can assist these countries to fight poverty and help in the actualise sustainable development in this region. The study employed job creation and SMEs performance as two dimensions of poverty alleviation, job creation was selected because Ronaghi and Scorsone (2023) pointed that lack of jobs creates poverty which is confirmed by Bartley (1994) while Beck, Demirguc-Kunt, A., and Levine (2005) established that small and medium scale enterprises help with economic growth and development which is needed to eradicate poverty.

The first hypothesis revealed that digital innovation has a significant effect on job creation which implies that digital innovation has the capacity to create jobs because the result from the Structural Equation Modelling reveals that digital innovation has a significant effect on job creation. In essence digital innovation serve as a veritable tool to alleviate poverty in. This result is consistent with the findings of Balsmeier and Woerter (2019) that digital technologies influence job creation, Brynjolfsson and McAfee (2012) also averred that technology creates more room for employment.

Results of the second hypothesis show that digital innovation has a significant effect on SMEs performance. Small businesses can perform better with the help of digital innovation and make significant contribution to economic development as suggested by Ibidunni, Ogundana and Okonkwo (2021). SMEs can perform better with digital innovation, and, according to Davis et al (1996) with improvement in SMEs performance, more jobs will be created, Ronaghi and Scorsone (2023) argued that more jobs in the country will reduce poverty and enhance standard of living of citizens. This finding aligns with the findings of Scott et al (2017) that digital innovation improves performance. This is also supported by Quinton, et al (2018) that having orientation to digital innovations improve SMEs performance. According to Li, et al (2018) technology leads to digital entrepreneurship which is paramount to improve SMEs performance in the digital age.

6. CONCLUSION AND IMPLICATIONS

Digital innovation is a veritable tool to alleviate poverty and improve citizens' well-being via job creation and SMEs performance. The findings of this study imply that country will enjoy the benefit of digital innovation and its power to alleviate poverty if digital innovation diffuses faster in the country, this aligns with the diffusion of innovation theory. The argument is higher level of innovation diffusion in a country, potentially lower the level of poverty. Aker and Mbiti (2010) established that mobile phones as part of digital innovation contribute significantly to economic development in Africa. Vu, et al (2020) confirmed this position that technology innovation drives economic growth while Muzanenhamo and Rankhumise (2022) established that digital entrepreneurship transforms the economic especially in Africa relying on the study he carried out in South Africa. Another study by Cordes and Marinova (2023) confirmed e-commerce which is a subset of digital innovation as a pathway to poverty alleviation in Sub-Sahara Africa.

The study zoomed the capacity of digital innovation on poverty alleviation, especially in the Sub-Sahara Africa region. The result of the finding corroborates previous studies and explains the implication of diffusion of innovation theory on how digital innovation can help alleviate poverty if it diffuses faster. Business owners in the Sub-Sahara region can contribute to poverty alleviation by leveraging digital innovation to improve their performance which will enhance their contributions to economic growth which is vital to sustainable development. Policymakers should create a suitable environment that will enable the adoption of digital innovation in their country which will help them to create jobs and enhance SMEs performance. As suggested by the United Nations (2020) that countries should develop policies to enhance the actualization of 17 Sustainability Development Goals in which poverty is at the frontend. Countries especially those in Sub Sahara Africa region should develop policies that will enhance diffusion of digital innovation in to combat poverty. Training on digital innovation can be done to empower graduates, unemployed, and underemployed youth to empower them to create jobs. Such training should be done to empower small business owners to empower them in order to contribute to economic growth and eradicate poverty. This study also serves as empirical evidence on the potential of digital innovation to alleviate poverty in the Sub-Sahara Africa region. The study also serves as bedrock for further studies via comparative study on developed countries and developing countries in Sub-Sahara Africa to see how developed countries leveraged digital innovation to create jobs and enhance SMEs performance.

7. LIMITATIONS AND FURTHER STUDIES

The study contributes to literature on digital innovation and poverty alleviation but the study is limited by focusing few countries in the selected region. Future studies is required to considered all countries in the selected region and also carry out comparative studies on how developed countries and developing countries are using digital innovation for sustainability.

AUTHOR DECLARATIONS

Author Contributions Solaja, O. A. : Conceptualization, Data Analysis and Interpretation, Wrote the Paper**;** Oyedele, O. O. : Validate research materials and methodology, result interpretation**;** Abiodun, A. J.: Wrote the paper, data analysis and interpretation; Olajugba, O. J: Conceptualize the study, wrote the paper, research methodology; Edewor, O. : Wrote the paper, examined and investigated research materials; Solaja, O. O: Data Collection, Analysis and interpretation; Akerele, F. T.: Data Collection, Literature Review

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