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A Systematic Literature Review on the Role of Digital Technology in Youth Economic Participation in Sub-Saharan Africa

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Abstract:

This study presents a systematic literature review on the role of digital technology in youth economic participation in sub-Saharan Africa. Guided by the PRISMA 2020 protocol, 111 records were screened, yielding 11 studies published between 2000 and 2026. The articles were extracted from Google Scholar, Dimensions, and Scopus databases. The quality of articles was assessed using the Modified Mixed Methods Appraisal Tool (MMAT). Evidence was synthesized using narrative and thematic analysis, Excel, and NVivo software. Findings indicate that mobile platforms, fintech systems, e-commerce applications, digital agribusiness tools, and gig economy platforms were the most influential technologies supporting youth employment, entrepreneurship, and income diversification. However, their effects are uneven and context dependent. Youth increasingly rely on the informal digital economy through freelancing, social media commerce, mobile money transactions, and platform-based micro-enterprises as survival strategies amid limited formal employment. The review further shows that outcomes depend on digital skills, access to education, innovation ecosystems, and affordable internet access. In contrast, weak infrastructure, high data costs, limited financing, and low digital literacy constrain participation and reinforce inequality. Fragmented policy implementation and weak institutional coordination further limit the protection of vulnerable youth and slow digital inclusion. Therefore, for digital technologies to generate meaningful livelihood opportunities, policies should prioritize enabling structural and institutional factors rather than technology alone.

Keywords: Digital Technology, Youth economic participation, Youth, Sub-Saharan Africa

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Introduction

Youth constitute a significant proportion of the population in Sub-Saharan Africa (SSA). According to UNICEF (2025), nearly 70% of the population in SSA is under 30, underscoring the growing importance of youth in shaping labour markets, economic productivity, and social transformation. In this review, youth refer to individuals aged 15 to 35 years, consistent with the African Union Commission's definition (NBS, 2022). Across the SSA region, youth participate in various economic activities, including agriculture, small businesses, informal trade, wage employment, entrepreneurship, and emerging digital economic activities (Aliu, 2024). However, a large proportion of youth employment remains concentrated in the informal sector, which is often characterized by low income, unstable working conditions, and limited social protection (Idris & Maikomo, 2024).

Despite the growing youth population, many countries in SSA continue to experience persistent youth unemployment and underemployment. The World Bank has estimated that approximately 11 million youth enter the labour market annually in Africa, while only about 3 million formal jobs are created (Chakravarty et al., 2017). However, youth who have engaged in self-employment face inadequate entrepreneurial support, skills mismatches, limited work experience, and restricted access to financial and productive resources (Muchira, 2023). Moreover, weak economic diversification and limited capacity to absorb employment in SSA economies continue to constrain sustainable job creation for youth (Aliu, 2024).

In response to these challenges, the expansion of digital marketing and broader digital technologies has increasingly been recognized as a key driver of youth employment creation and enhanced economic participation. Lugero et al. (2025) observed that the African continent has recorded substantial progress in digital transformation, particularly through the diffusion of internet-based platforms and digital services. Azu et al. (2021) declared that the digital economy has the potential to overcome youth unemployment in West African countries. Similarly, Osabohien (2024) argued that the growing adoption of digital technologies has fundamentally reshaped the organisation and execution of economic activities across multiple sectors, altering traditional business models and labour market structures.

Empirical evidence further indicates that digital technologies have widened access to entrepreneurship opportunities and employment-related information for youth across the Sub-Saharan Africa agriculture sector and other non-farm activities (Aliu, 2024).

Despite the positive role technology plays in SSA, several scholars have reported rapid youth unemployment (Rapanyane & Sethole, 2020). Moreover, despite governments in SSA formulating policies to address unemployment, the challenge persists (Barasa & Kiiru, 2023). Therefore, the researchers were motivated to assess how digital technology contributes to youth economic participation in SSA. Specifically, this study was designed to answer the following key research questions:

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(i) Which digital technologies support youth economic participation?

(ii) How do digital technologies support youth economic participation?

(iii) How do the policies support the digital technologies to promote economic participation?

Methods

Eligibility Criteria

This systematic review was guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) framework to ensure a transparent, replicable, and methodological selection of evidence.

Inclusion Criteria

Studies were included if they examined the relationship between digital technologies or innovations and employment-related outcomes, such as job creation, employability, entrepreneurship, self-employment, or income generation. Only studies conducted among youth populations in Sub-Saharan African countries were included. Only empirical studies were included, regardless of whether they used qualitative, quantitative, or mixed-method designs. This criterion was selected to ensure that the review is grounded in observable evidence and measured outcomes, rather than theoretical assumptions. It strengthens the validity of findings by relying on studies that apply systematic data collection and analysis. Studies published between 2000 and 2026 were included. This period captures the era of accelerated digital transformation in Sub-Saharan Africa, including the expansion of mobile technology, internet penetration, fintech ecosystems, and digital platforms that have significantly reshaped employment structures and youth livelihood strategies (Idris & Maikomo, 2024). Only studies published in English were included. This criterion was applied due to the dominance of English in academic publishing in the region and to ensure consistency, accurate interpretation, and feasibility of systematic synthesis across studies. The review included peer-reviewed journal articles, conference papers, working papers, and institutional reports containing empirical findings. These were included to ensure comprehensive coverage of evidence, particularly because research on digital employment in Sub-Saharan Africa is still emerging (Lugero et al., 2025) and is therefore often documented not only in journals but also in reports from policy and development institutions.

Exclusion Criteria

Studies that examined digital technologies without linking them to employment, income generation, entrepreneurship, or labor market outcomes were excluded. Studies focusing on labor markets or unemployment without reference to digital technologies were excluded. Conceptual papers, opinion articles, editorials, and commentaries without empirical data were excluded. This ensured that

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conclusions were based on verifiable evidence rather than theoretical or subjective arguments. Duplicate studies and studies with insufficient methodological detail were excluded. This ensured methodological integrity, reduced bias, and improved the reliability and reproducibility of the review process.

Information Sources and Search Strategy

The literature was retrieved from three major academic databases: Scopus, Dimensions, and Google Scholar. These databases were selected because they provide broad, multidisciplinary coverage of peer-reviewed studies on digital technology, innovation, employment, entrepreneurship, and labor market dynamics in developing economies, including SSA (Singh et al., 2021). The search strategy was developed using Boolean operators (AND, OR), truncation, and keyword combinations aligned with the study questions. The Boolean operators used in Scopus were ("digital innovation" AND employability AND Africa). In the Dimension database, the query ("digital technology" AND "job creation" AND "youth" AND "Africa") was applied. In Google Scholar ("digital technology" AND "youth employment" AND "Sub-Saharan Africa") was applied. Additional filters were applied to restrict results to English studies published between 2000 and 2026.

Selection Process

The study selection process involved four stages: identification, screening, eligibility assessment, and inclusion. The citations/references for studies retrieved from the databases were exported and compiled in the Mendeley reference management system, where duplicate records were identified and removed. Title and abstract screening were conducted to assess the relevance of studies against the predefined inclusion and exclusion criteria. Two reviewers independently performed the screening process to minimize selection bias and improve reliability. Then the researchers jointly agreed on which studies to include in the analysis. Any disagreements between reviewers were resolved through discussion and consensus. Full-text articles of potentially eligible studies were retrieved and assessed for eligibility. During this stage, studies that did not sufficiently address digital technologies and employment-related outcomes among youth in Sub-Saharan Africa were excluded. Reasons for exclusion at the full-text stage were documented to ensure transparency in the review process. Finally, studies that met all eligibility criteria were included in the synthesis and analysis.

Reporting Bias Assessment

As recommended by Choong et al. (2024), to minimize reporting bias, the assessment focused on the clarity of the research questions, the appropriateness of the study design, the adequacy of the sample size, the transparency of the data collection procedures, and the consistency between the findings and

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conclusions. Publication bias was minimized by balancing the studies with positive, negative, and non-significant results.

Study Selection Process

The study selection process followed the PRISMA 2020 framework and involved four sequential stages: identification, screening, eligibility assessment, and inclusion (Figure 1). During the identification stage, studies were retrieved from Google Scholar, Scopus, and Dimensions using predefined search strings related to digital technology, youth employment, and Sub-Saharan Africa. A total of 183 records were initially identified from the selected databases. In the identification stage, a comprehensive database search was conducted in Google Scholar, Scopus, and Dimensions using predefined Boolean search strings that combined keywords such as digital technology, youth employment outcomes, and Sub-Saharan Africa. A total of 183 records were initially identified: 146 from Google Scholar, 10 from Scopus, and 27 from Dimensions. All retrieved records were exported into a Mendeley reference management system for organization and duplicate management.

At the screening stage, after title and abstract screening against predefined inclusion criteria, 72 records were excluded: 26 did not address digital technology and employment outcomes, 32 were outside the Sub-Saharan Africa context, and 14 were conceptual papers without empirical or analytical evidence. During the eligibility stage, 39 articles were maintained while 28 were excluded. Of the 28 excluded articles, 14 studies lacked a proper link to the study, 6 lacked clear methodological descriptions, 5 did not provide measurable employment outcomes, and 3 did not establish a clear link between digital technology use and youth employment after eligibility assessment. Finally, 11 studies were included in the analysis (6 from Google Scholar, 3 from Dimension, and 2 from Scopus).

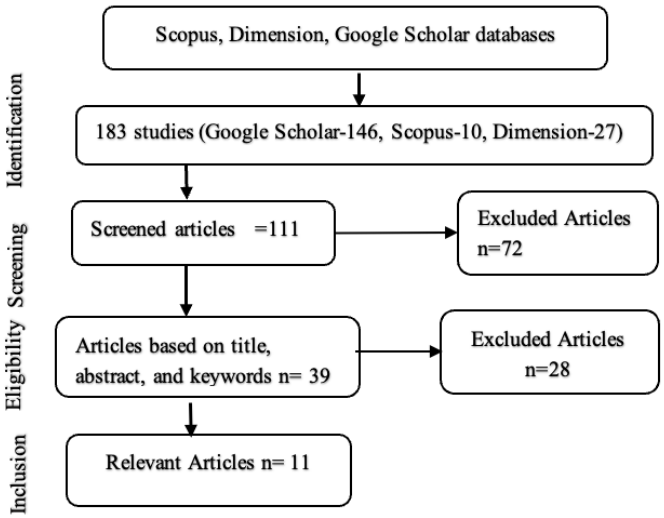

Figure 1: PRISMA Flow Diagram
Source: Adapted from Shaffril et al. (2021).

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Quality Appraisal Procedures

The methodological quality of the study was assessed using the Mixed Methods Appraisal Tool (MMAT) adapted from Choong et al (2024). The MMAT was considered appropriate because the included studies employed diverse methodological approaches, including qualitative, quantitative descriptive, mixed-methods, experimental, and review-based designs related to digital technology and youth employment creation in Sub-Saharan Africa. The quality appraisal process was conducted systematically to filter the 11 studies that qualified for analysis. Initially, all studies were classified by research design in accordance with MMAT requirements. The reviewed studies comprised qualitative, quantitative, and mixed-methods. To enhance methodological soundness and reduce assessment bias, the appraisal process involved independent evaluation of each study based on the MMAT screening criteria. The assessment focused on determining whether the study clearly stated the research questions and methodological approach, whether the collected data adequately addressed them, whether the analysis was compatible with the research questions, and whether the analysis, results, and interpretation aligned with the research questions. Studies were categorized as having very high methodological quality (100%), while those that met this criterion were categorized as high quality (80%). Studies with moderate methodological limitations were rated as moderate quality (60%).

Therefore, studies were included in the analysis if they demonstrated strong methodological rigor, and only studies that scored moderate, high, and very high quality were selected. Table 1 presents the MMAT scores for the studies.

S/N	Author	Country	Title	Types of mobile technologies	Data analysis	Findings (Influencing factors)	MMAT score	Quality rank
1	Barasa & Kiiru (2023).	Africa	The digital economy and youth employment in Africa.	ICT mobile, online, and Internet-based digital technologies	Regression analysis	Infrastructure and human capital challenge	5/5 (100%)	Very high
2	Idris & Maikomo (2024).	Nigeria	Impact of the digital economy on youth unemployment in Nigeria	Mobile data	regression analysis	Low-use digital technologies	5/5 (100%)	Very high
3	Owolabi et al. (2025).	West Africa	Digital infrastructure, innovation, and	Mobile cellular subscriptions,	Regression	Policy role	5/5 (100%)	Very high

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			youth unemployment: recent evidence from West Africa.	broadband, and computers				
4	Azu et al. (2021)	Nigeria	Influence of digital economy on youth unemployment in West Africa	Internet penetration rate and mobile telephone subscription, Artificial intelligence	ARDL model	Low-use digital technologies	5/5 (100%)	Very high
5	Makananise & Madima (2020).	South Africa	The use of digital media technology to promote female youth voices and socio-economic empowerment in rural areas of Thohoyandou, South Africa	Digital media technology: Twitter and Facebook	Descriptive analysis	Positive impact of DT on employment	3/5(60%)	Moderate
6	Metu et al. (2020).	SSA	Ending youth unemployment in sub-Saharan Africa: Does ICT development have any role?.	Mobile phone subscriptions, broadband internet subscriptions, Wi-Fi internet subscriptions	Generalized Method of Moments (GMM)	Low-use digital technologies	5/5 (100%)	Very high
7	Ogbonna et al. (2023).	Africa	Information and Communication Technology (ICT) and youth unemployment in Africa.	Internet and mobile cellular phone, Artificial intelligence	Generalized Method of Moments (GMM)	Positive impact of DT on employment	5/5 (100%)	Very high
8	Lugero et al. (2025).	SSA. Kenya, Ghana, Nigeria, Rwanda.	Digital Outsourcing and Youth Entrepreneurship in Sub-Saharan Africa: Comparative Evidence from Kenya, Ghana,	Mobile broadband, fintech tools, and gig work infrastructure, digital currency.	Regression	Infrastructure and human capital challenge	5/5 (100%)	Very high

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			Nigeria and Rwanda.					
9	Osabohien (2024).	Nigeria	ICT adoption and youth employment in Nigeria's agricultural sector	Mobile data/phones/mobile broadband subscriptions, (internet-enabled mobile devices	Logit regression	Positive impact of DT on employment	4/5 (80%)	High
10	Tunji-Olayeni et al. (2021)	Nigeria	Youth Employment Creation as an Inclusive Solution for Sustainable Development	Digital media, computers, cell phone calls, the Internet, and Short Message Service (SMS).	Descriptive analysis	Low-use digital technologies	3/5(60%)	Moderate
11	Muchira (2023)	Kenya	Digital Media and Creative Economy Potential on Youth Employment	Mobile phones, social media, such as YouTube, Facebook, Instagram, TikTok and Google	Thematic analysis	Policy role	3/5(60%)	Moderate

Table 1: Article assessment scores using MMAT

Source: SLR analysis (2026).

Coding and Thematic Synthesis Procedures

The study employed a qualitative thematic synthesis to systematically analyze findings from the selected studies. The process was supported by NVivo software, which facilitated structured coding, organization, and interpretation of the extracted literature. NVivo was used to ensure transparency, traceability, and consistency in the process of moving from raw textual data to final analytical themes. The thematic synthesis process was conducted in six main stages as proposed by Braun and Clarke (2006). The steps involved data familiarization, preliminary code generation, searching studies' themes, reviewing themes, defining and naming themes, data analysis, and report generation. The automatic coding was performed using NVivo software, as indicated in Figure 2.

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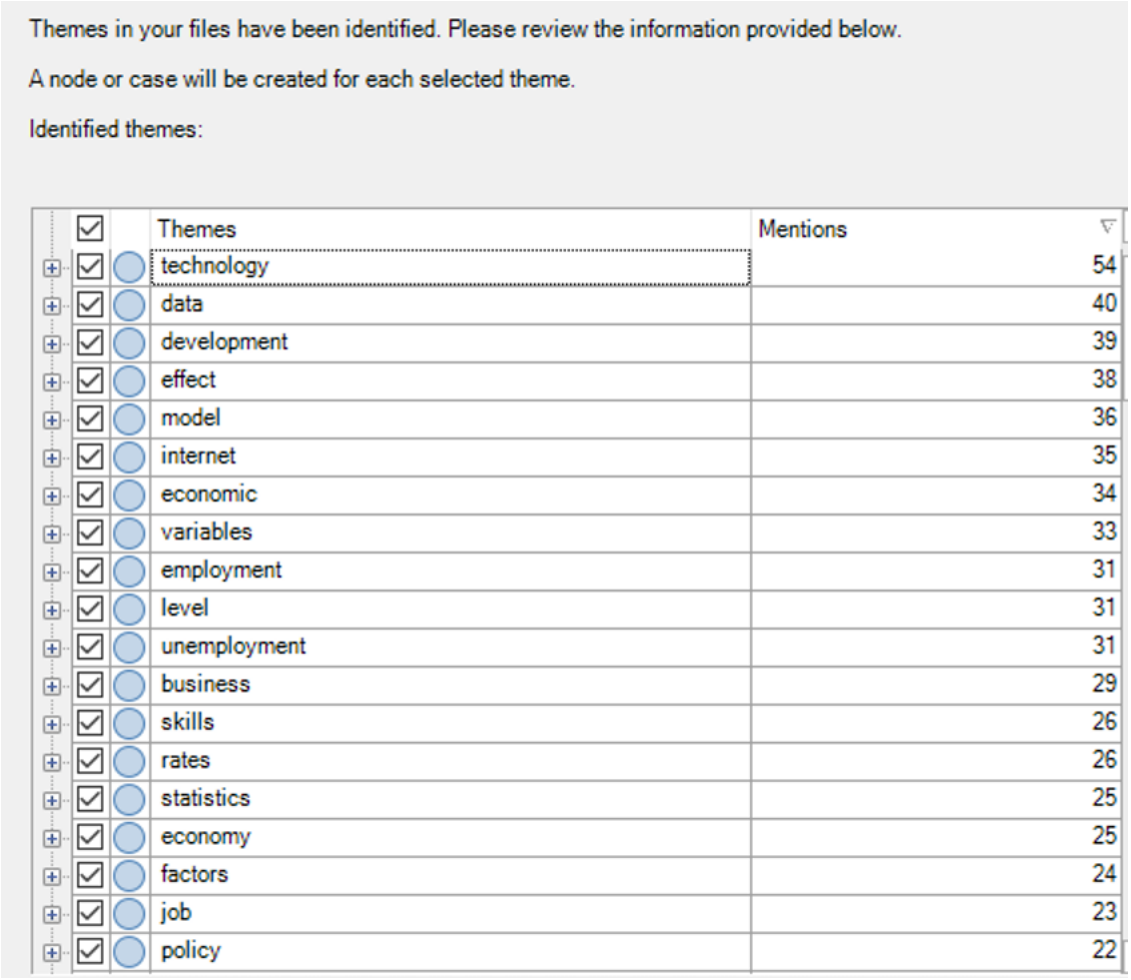

Themes	Mentions
technology	54
data	40
development	39
effect	38
model	36
internet	35
economic	34
variables	33
employment	31
level	31
unemployment	31
business	29
skills	26
rates	26
statistics	25
economy	25
factors	24
job	23
policy	22

Figure 2: NVivo automatic themes generation
Source: NVivo SLR Analysis (2026).

Figure 2 shows that NVivo software identified the concepts of technology, data, development, effect, model, internet, economic, variables, employment, level, unemployment, business, skills, rates, economy, factors, job, and policy as study themes. However, these themes were revised until the study's final set of themes was generated. The final themes focus on types of digital technology, the role of digital technology on youth, and policies supporting the youth's digital technology economic participation were confirmed. The word cloud (Figure 3) articulates that the words of youth, unemployment/employment, digital, technology, policy, economic, development, outsourcing, Africa, adoption, skills, access, mobile have appeared several times justifying the formulation of the themes of the study as the types of digital technology supporting economic participation used mostly, the role of digital technology on economic participation and the role of policy in promoting economic participation.

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Figure 3: NVivo Word Cloud
Source: NVivo SLR Analysis (2026)

Results

The studies' characteristics

The analysis (Table 2) indicates that 4 studies (36.4%) were conducted in Nigeria. SSA and Africa each attracted two studies, while Kenya, West Africa, and South Africa each attracted one study. The findings generally indicate that few studies have assessed how digital capability has impacted youth economic participation in SSA. Therefore, the coverage of studies in SSA is limited, as most countries have little information on how digital capability enhances youth economic participation, since no studies on digital technology have been conducted in these countries. The findings further demonstrate that Nigerian scholars lead in recognizing the role of digital technology, as reflected in the many studies conducted in Nigeria compared with those in other countries. These studies are essential in generating recommendations on how digital technology promotes youth economic participation in their country. Nigeria has the largest population in Africa and a large number of unemployed youth (Virk et al., 2023). Hence, devising strategies to overcome youth unemployment is of paramount importance.

Regarding the types of digital technology, the studies indicate that mobile phone data access is the most widely examined, with almost 80% asserting that low-cost mobile phone data access is essential to promote the role of digital capability in enhancing youth economic participation in SSA. The studies focus on other types of digital technology access, such as social media (Facebook, Instagram, Twitter

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(currently known as X), Google Chat, and TikTok), and on roles in enhancing youth's economic participation capability. Moreover, the scholars acknowledge the role of electronic text messages (SMS), digital currencies, artificial intelligence, and other computer-based devices in promoting youth economic participation. At least, all scholars claim that higher internet bandwidth costs and limited access to digital devices act as barriers to enhancing youth economic participation. Therefore, reducing the charges for digital devices and internet bandwidth is essential for the sustainable promotion of the digital capability role in promoting youth economic participation. The policies should emphasize that the government of SSA may subsidize digital devices and internet bandwidth.

The findings indicate that 4/11 studies (36.4%) applied regression analysis; 2/11 (18.2%) applied the Generalized Method of Moments (GMM), logistic regression, and the Autoregressive Distributed Lag (ARDL) model; and descriptive and thematic analyses each attracted one study. The findings display the variety of data analysis methods in digital technology and the role of youth economic participation in SSA. The findings demonstrated that scholars are mostly preoccupied with the regression method, recognizing its simplicity and accessibility (Goli & Drechsler, 2020). However, the findings indicate that studies employing multivariate analysis techniques, such as Smart PLS and SEM, have not yet been conducted. Moreover, the mixed-methods studies failed to depict both the indirect-effect variables and the cause-and-effect interaction. Also, they failed to explain in depth how digital capability enhances economic participation among youth in SSA.

The studies have reported how infrastructure and human capital challenges constrained the role of youth digital capability in economic participation (2/11 (18.2% of studies) and how low use of digital technologies acts as a barrier to youth economic participation (4/11 (36.4% of studies). Moreover, the studies articulated the role of policies in promoting youth digital economic participation (2/11 (18.2% of studies) and recognised the role of digital technology in promoting youth economic participation in SSA (3/11 (27.3% of studies). Therefore, the findings establish that most scholars have been drawn to assess the barriers limiting the acceptance or functionality of digital technology in SSA. Studying barriers is essential because it articulates the extent of these barriers and recommends promotional strategies to overcome them and enable the effective use of digital technology in SSA. Moreover, studying the role of technology is also essential to reveal areas of weakness that can be improved to enhance the effectiveness of digital capabilities in promoting youth economic participation in SSA. Thus, the studies' topics and variables clearly articulate how digital technologies might enhance youth economic participation in SSA.

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Discussion

This section presents the types of digital technology narratives, the importance of digital technologies in promoting youth economic participation, and the role of policies in supporting youth economic participation through digital technologies.

Types of digital technologies supporting youth economic participation

The scholars have reported various types of mobile technologies that support youth economic participation in SSA. These include mobile cellular subscriptions, broadband internet subscriptions, and digital device accessibility (Owolabi et al., 2025), as well as the use of digital media technologies such as Twitter and Facebook (Makananise & Madima, 2020). Instagram, TikTok, and Google media have also been mentioned (Muchira, 2023). Moreover, Wi-Fi internet subscriptions (Metu et al., 2020), fintech tools, gig work infrastructure (Lugero et al., 2025), digital computer-based media, internet-based media, Short Message Service (SMS), artificial intelligence, and digital currencies have been listed as among the types of youth digital technologies in use in SSA (Tunji-Olayeni et al., 2021). The findings indicate that studies of youth digital technology in SSA have covered at least the essential media; hence, scholars believe there is potential to identify the effects of digital technology on fostering youth economic participation in SSA. The findings suggest that the failure of digital technology to promote youth economic participation in SSA may stem from other hindrances, such as financial constraints, limited expertise, and weak enforcement policies, rather than from the inadequacy of youth digital technologies.

Tunji-Olayeni et al. (2021) reported persistently high youth unemployment in Nigeria despite the expansion of digital transformation initiatives, indicating that access to digital opportunities remains uneven among youth populations. Similarly, Osabohien (2024) found that younger populations frequently face affordability challenges, low digital literacy, limited access to internet infrastructure, and inadequate participation in digital financial systems. The study emphasized that digital exclusion disproportionately affects vulnerable groups, including rural populations, women, and disadvantaged youth. Across the reviewed studies, a clear pattern emerges that the benefits of the informal digital economy remain unevenly distributed, with vulnerable youth facing higher risks of exclusion, unstable income, and insecure working conditions. The findings, therefore, imply that while digital technologies provide alternative livelihood pathways, sustainable participation requires stronger digital inclusion policies, equitable access to infrastructure, targeted digital skills development, and supportive institutional ecosystems within SSA. However, the findings therefore suggest that digital connectivity alone is insufficient to generate inclusive employment outcomes unless accompanied by digital literacy, affordable internet infrastructure, and supportive institutional frameworks.

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How digital technologies support youth economic participation

The analysis acknowledged that digital connectivity enables youth to access employment opportunities, conduct business transactions, engage in digital entrepreneurship, and participate in labor markets with relatively low costs (Tunji-Olayeni et al., 2021). Online marketing systems and internet-based financing mechanisms improved the sustainability of youth empowerment projects in Kenya through fostering access to customers, advertising products, and mobilizing financial resources more efficiently (Lugero et al., 2025). Digitalized agri-food systems create new employment opportunities for youth by catalyzing digital agricultural platforms, mobile-based market systems, and online food supply networks (Aliu, 2024). Likewise, online professional networking platforms such as LinkedIn positively influence youth employment outcomes in South Africa where it was revealed that youth who received LinkedIn training were more likely to secure employment opportunities compared to those without such digital networking exposure (Makananise & Madima, 2020). Tunji-Olayeni et al. (2021) reported that digital skills training enhanced youth participation in online business activities, digital marketing, and internet-based employment opportunities in Nigeria. The authors observed that youth increasingly perceive digital technologies as practical alternatives to conventional employment pathways.

However, despite these positive outcomes, some studies present contradictory findings. Metu et al. (2020) observed that increased internet usage may contribute to unemployment among low-skilled youth lacking entrepreneurial and digital competencies, who may spend more time on the internet than at work. The analysis revealed the structural, institutional, educational, and economic barriers that limit the sustainability of youth livelihoods in the informal digital economy. The constraints include challenges related to digital exclusion, affordability constraints, inadequate infrastructure, weak policy support, limited financing opportunities, unstable working conditions, and unequal access to digital skills (Lugero et al., 2025). Therefore, for digital technology to promote positive youth economic participation, stakeholders should address the identified challenges.

The role of Policies in digital technologies supporting youth economic participation

The analysis indicates that policy limitations lead to institutional weaknesses and structural inequalities that affect youth participation in the digital economy. The analysis confirms that the existing national policies have not sufficiently addressed the digital divide or protected vulnerable youth within digital labour markets in SSA. The studies under review have reported weak policy, institutional coordination, inadequate digital skills development, unequal access to training, fragmented youth employment and digital economy policies, and persistent structural barriers and limited protection for vulnerable youth (Owolabi et al., 2025; Lugero et al., 2025; Muchira, 2023).

Weak enforcement mechanisms, inadequate institutional coordination, inconsistent implementation processes, and poor stakeholder engagement limit the effectiveness of national digital policies in

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promoting inclusive youth participation within digital labour markets. (Barasa & Kiiru, 2023). Collectively, the findings indicate that although many SSA countries have introduced digital transformation and youth employment policies. However, the effectiveness of these policies remains constrained by weak implementation capacity, policy fragmentation, infrastructural inequalities, and insufficient protection mechanisms for vulnerable youth populations. Therefore, there is a need to reinforce existing policies and formulate stronger ones to promote youth participation in the digital economy in SSA.

Theoretical contribution

From a theoretical standpoint, the Diffusion of Innovations (DOI) theory, developed by Everett Rogers (1962), argues that the adoption and impact of innovations depend on perceived relative advantage, compatibility, complexity, trialability, and observability, which vary across youth populations and SSA contexts. Regarding the first study question on which digital technologies are most effective in supporting youth employment outcomes, the review shows that mobile and internet-based technologies, educational and training technologies, digital financial systems, information technologies, and creative innovation platforms constitute the dominant categories of digital innovation influencing youth economic participation in SSA. However, their effectiveness varies with accessibility, affordability, infrastructure availability, and youth digital literacy levels.

From a DOI perspective, technologies such as mobile phones, internet platforms, mobile money systems, e-commerce applications, and digital marketing tools are associated with stronger employment outcomes because youth perceive them as accessible, affordable, and economically beneficial. These technologies reduce barriers to market entry, facilitate self-employment, and improve access to customers and financial transactions. Conversely, technologies perceived as complex, expensive, or incompatible with local realities show lower adoption and weaker employment effects. This explains why mobile money systems and smartphone-based applications demonstrate stronger diffusion among youth in rural and peri-urban areas where formal employment opportunities remain limited.

A key finding across the synthesis is that employment outcomes associated with digital technologies are highly heterogeneous across SSA. Mobile-based trading systems, online work platforms, digital agricultural technologies, and creative economy applications dominate youth participation patterns, but their distribution reflects inequalities in infrastructure, education, and institutional support. However, urban youth are more likely to engage in ICT-enabled services, software-related work, and digital creative industries. In contrast, rural youth primarily rely on mobile money systems, informal digital trading, and agriculture-related technologies (Tunji-Olayeni et al., 2021). This suggests that digital employment opportunities are structurally differentiated rather than uniformly accessible across youth populations.

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The review further demonstrates that digital technologies are more effective in generating employment when combined with complementary capabilities such as digital literacy, entrepreneurial competencies, vocational training, and educational support. Educational and training technologies emerged as critical enablers of employability, self-employment, and entrepreneurship among youth. Nevertheless, unequal access to digital education and training opportunities, particularly among disadvantaged and rural youth populations, limits the inclusiveness of these employment gains. This finding reinforces the DOI proposition that adoption and impact depend not only on the availability of technology but also on user readiness and capability.

The findings indicate that many youths increasingly rely on digital platforms as alternative livelihood pathways due to limited formal employment opportunities across SSA. Youth navigate the informal digital economy through online businesses, social media marketing, digital freelancing, mobile commerce, online content creation, and digitally enabled self-employment activities. Digital engagement, therefore, frequently complements existing informal livelihood systems rather than replacing them with formal employment structures.

The DOI framework further clarifies that compatibility with existing socio-economic conditions significantly influences youth participation in informal digital economies. In many SSA contexts characterised by high unemployment, informality, and constrained labour markets, digital technologies are adopted because they fit within existing survival strategies and provide flexible income-generating opportunities. As a result, youth often combine multiple digital activities, such as online selling, digital promotion services, mobile financial transactions, and platform-based work, to diversify income sources and sustain livelihoods in unstable labour markets. Conversely, the review also indicates that structural challenges, including high internet costs, inadequate electricity supply, uneven broadband coverage, limited financing opportunities, and weak digital infrastructure, significantly constrain the sustainability of digital livelihoods (Lugero et al., 2025). These barriers reduce vulnerable youth's ability to fully benefit from digital economic opportunities and increase the risk of exclusion from emerging digital labour markets.

The findings reveal that policy implementation across SSA remains uneven and fragmented. Although many countries have introduced ICT policies, digital transformation strategies, and youth employment frameworks, these interventions have not sufficiently addressed inequalities related to infrastructure access, affordability, digital literacy, and labour market protection. From a DOI perspective, weak institutional coordination and limited contextual readiness reduce the effectiveness of policy-driven digital diffusion. In many SSA countries, digital technologies are introduced into environments characterized by weak infrastructure, limited institutional capacity, poverty, and unequal educational opportunities (Metu et al., 2020). Consequently, digital innovations tend to disproportionately benefit

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youth with existing access to technology and skills, while excluding vulnerable groups such as rural youth, low-income populations, and out-of-school youth (Ogbonna et al., 2023).

Conclusion

This review demonstrates that digital technologies play a significant but context-dependent role in shaping youth economic participation in SSA. The findings indicate that while digital tools expand employment, entrepreneurship, and income-generating opportunities, these outcomes are unevenly distributed and strongly mediated by contextual, structural, and capability-related factors. This review concludes that digital technologies have become important pathways for youth employment and livelihood diversification in Sub-Saharan Africa (SSA). The findings revealed that mobile technologies, internet platforms, digital training systems, and creative digital tools are increasingly supporting youth participation in entrepreneurship, informal digital work, and online economic activities. In addition, many youth are using digital platforms as alternative survival strategies in response to persistent unemployment and limited formal job opportunities.

However, the study further found that the benefits of digital transformation remain unevenly distributed. Although digital technologies create new economic opportunities, many vulnerable youth continue to face barriers related to limited digital skills, poor infrastructure, unequal internet access, weak institutional support, and unstable working conditions. Consequently, participation in the informal digital economy often remains insecure and unsustainable for many young people. Furthermore, the review revealed that national policies across SSA have not adequately bridged the digital divide or protected vulnerable youth within digital labour markets. Weak policy implementation, fragmented institutional coordination, and unequal access to digital education and training continue to limit inclusive participation in digital economies.

Generally, the study concludes that digital technologies alone cannot guarantee inclusive youth employment outcomes. Rather, their effectiveness depends on supportive policies, accessible digital infrastructure, inclusive skills development, and stronger institutional protection mechanisms. Therefore, strengthening digital inclusion and aligning digital transformation policies with labor market realities remains essential for improving sustainable youth livelihoods in SSA.

Limitations of the Study

The review was restricted to studies published in English. This language restriction may have excluded relevant empirical evidence published in French, Portuguese, and Arabic, which are widely used in several Sub-Saharan African countries. As a result, the evidence base may disproportionately reflect Anglophone contexts, limiting linguistic and regional representativeness. Also, studies reporting positive

or statistically significant relationships between digital technologies and youth employment outcomes are more likely to be published in indexed journals than those reporting null or negative findings.

Although multiple databases were used and screening was systematic, the exclusion of unpublished and grey literature may have led to an overrepresentation of favourable findings. Further, there is notable contextual heterogeneity across Sub-Saharan Africa. Variations in digital infrastructure, education systems, labour market structures, and regulatory environments mean that findings from more digitally advanced countries, Kenya, Nigeria, South Africa, Rwanda, and Ghana, may not be directly transferable to less developed or rural contexts. This heterogeneity limits the extent to which findings can be generalized across the entire region.

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