ISSN 2348-3156 (Print)
International Journal of Social Science and Humanities Research ISSN 2348-3164 (online)
Vol. 12, Issue 2, pp: (145-158), Month: April - June 2024, Available at: www.researchpublish.com

Understanding the Influence of the Digital Economy on Youth Employment: Insights from the Ghanaian Context

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DOI: https://doi.org/10.5281/zenodo.11402090

Published Date: 22-May-2024, Amendment Date: 31-May-2024

Abstract: **The digital economy is transforming labor markets worldwide, creating new opportunities while disrupting existing jobs. This shift poses particular challenges for developing countries struggling with youth unemployment. Ghana is rapidly digitizing its economy while facing significant youth underemployment issues. However, little empirical research examines how Ghana's digital transformation impacts young people's livelihoods. This mixed-methods study aimed to address this gap by investigating the relationship between the digital economy and youth employment in Ghana.**

A survey of 350 Ghanaian youth and in-depth interviews with stakeholders explored how digital skills and literacy, and infrastructure access related to employment Status (outcomes). Regression and mediation analyses revealed that digital skills and infrastructure access positively influenced job status, with skills indirectly improving status via infrastructure. The findings provide insights into opportunities and barriers youth face in Ghana's digital economy.

The study contributes novel empirical evidence on this under researched topic. It enhances understanding of dynamics between technology, employment, and youth development in Ghana specifically. The implications suggest the need for holistic interventions to equip youth with digital and business skills, improve infrastructure access equitably, and address socioeconomic barriers limiting disadvantaged groups' participation. This research informs evidence-based policies harnessing digital innovations for inclusive and sustainable youth livelihoods in Ghana and other developing contexts.

Keywords: **Digital Economy, Youth Employment, Ghana, Digital Skills and Literacy, Employment Status, Access to Digital Infrastructure.**

I. INTRODUCTION

The global economic environment has changed due to the exponential rise of the digital economy in recent years, which has brought with it both unprecedented opportunities and problems for employment across a variety of sectors. The internet, mobile devices, and advanced data analytics are just a few examples of the digital technologies that have proliferated and profoundly changed how businesses function, engage with customers, and generate value. Because of this, conventional ideas about work, employment, and career paths have been reinterpreted, leading to the emergence of new job categories and skill requirements.

The digital economy, according to McKinsey Global Institute (2019), includes a wide range of industries, such as software development, e-commerce, digital finance, and telecommunications services. In addition to completely changing market dynamics and corporate structures, this digital revolution has had a significant impact on labor markets all over the world.

Specifically, new job opportunities have emerged as a result of the increasing integration of digital technologies into economic operations, while existing ones have been restructured and automated.

In light of this, policymakers, academics, and practitioners are becoming more and more interested in and scrutinizing the effects of the digital economy on employment. Digitalization's supporters highlight how it may boost productivity, spur economic growth, and open up new job opportunities, while its detractors worry about how it would affect workers' wages unevenly and exacerbate inequality.

The effect of the digital economy on employment is especially important in developing nations, where structural constraints and the digital gap are pervasive. Sub-Saharan African nations, like Ghana, are rapidly digitizing due to rising internet usage, smartphone adoption, and government-led programs that support innovation and digital inclusion. [1]. However, the extent to which this digital transformation translates into inclusive and sustainable employment opportunities, especially for youth, remains a subject of debate and inquiry.

Like many other African countries, Ghana is facing two major problems as it continues to develop economically: using the promise of the digital economy and tackling the ongoing issues of youth unemployment and underemployment. Understanding the dynamics of youth employment in the context of the digital economy is crucial for policymakers, educators, employers, and other stakeholders, since the number of young people is increasing and their desire for digital technologies grows.

In light of this, the purpose of this article is to investigate how the digital economy affects youth employment in Ghana, highlighting the benefits, drawbacks, and implications of digitalization for the performance of the young labor market. This study intends to deepen our understanding of the relationship between technology, employment, and youth development in Ghana by exploring the experiences, goals, and difficulties faced by young people in the country navigating the digital economy.

This study aims to create a more comprehensive understanding of the transformative potential of the digital economy for young employment in Ghana and abroad by combining empirical study, theoretical insights, and policy implications. This research attempts to support evidence-based policies and interventions aimed at encouraging inclusive and sustainable work possibilities in the digital age by clarifying the intricate interactions among technology progress, economic development, and young livelihoods.

Rationale for studying the influence of the digital economy on youth employment in Ghana.

Due to the digital economy's explosive growth, researchers and policymakers are looking into how it will affect different demographic groups and economic sectors and how it will affect job dynamics globally. It is crucial to comprehend how the digital economy affects youth employment in Ghana, an economy that is quickly digitizing and has a growing youth population.

Ghana has a young population: over 35% of its people are between the ages of 15 and 35 [2]). The aforementioned demographic reality emphasizes the vital role that youth play in determining the socio-economic trajectory of the nation and emphasizes the significance of attending to their job demands. As digital technologies become more and more integrated into daily life, it is critical to comprehend how young people interact with and profit from the digital economy in order to support their social and economic inclusion.

Ghana's economy has grown recently, but the country still struggles with a high percentage of youth unemployment, which is estimated to be about 12% ([3]. Furthermore, young people are disproportionately affected by underemployment and informal employment, which restricts their access to possibilities for professional growth, social protection, and secure income. Examining the relationship between youth employment and the digital economy can provide new perspectives on how to combat unemployment and use technology to help young Ghanaians establish stable livelihoods.

Ghana has set out to reinvent itself digitally, using technology to improve service delivery, spur economic growth, and advance inclusive development. The government's commitment to utilizing digital technologies for socioeconomic growth is demonstrated by initiatives like the National Digital Transformation Agenda and the Digital Ghana Agenda 2020 [4]. To maximize the benefits of digitization and make sure that young people are prepared to succeed in the digital age, it is imperative to comprehend how these digital initiatives interact with the reality and goals of youth employment.

Researching how Ghana's young employment is affected by the digital economy adds to the larger discussions on digitalization and the dynamics of labor markets in developing nations. Insights into common issues, best practices, and policy lessons for utilizing the digital economy for equitable and long-term youth employment can be gained through comparative studies with various contexts. Through Ghana's positioning in the global conversation on youth empowerment and digital transformation, this research seeks to produce knowledge that is applicable, practical, and adaptable to a range of settings.

In conclusion, Ghana's demographic makeup, the ongoing problem of youth unemployment, the goal of digital transformation, and the wider ramifications for the discourse on global development serve as the main reasons for investigating the impact of the digital economy on youth employment in Ghana. This project aims to provide evidence for evidence-based policies and interventions that harness the transformative potential of the digital economy to empower young Ghanaians and generate opportunities by examining the relationship between technology, employment, and youth development.

Research gap: Identification of the need for empirical research focusing on the Ghanaian context.

There is still a dearth of empirical study on the effects of digital technologies on young employment in Ghana, despite the growing recognition of their revolutionary potential in influencing labor markets. Studies that already exist frequently take a macroeconomic or sectoral viewpoint, ignoring the complex experiences and goals that young Ghanaians have in the digital economy. As a result, in the Ghanaian context, there is a lack of empirical data that explains the intricate interactions among digitalization, skill development, and young employment outcomes [5].

Ghana's socioeconomic environment, which is marked by a young population, fast urbanization, and changing digital infrastructure, offers special chances as well as difficulties for youth employment. However, because institutional frameworks, policy environments, and socio-cultural dynamics differ, the generalizability of research findings from various contexts may be constrained [6]. Therefore, in order to provide culturally relevant insights and drive evidence-based policy initiatives, there is a strong need for empirical research that is rooted in the Ghanaian environment.

Policymakers trying to create focused initiatives that effectively address young unemployment face a problem due to the paucity of empirical evidence on the impact of Ghana's digital economy on youth employment. Policy decisions may be made on the basis of assumptions or anecdotal information in the absence of strong empirical evidence, which could result in less than ideal outcomes and lost opportunities to use digital technologies for youth empowerment. Empirical research can close this knowledge gap by offering decision-makers practical advice that guides the creation and execution of inclusive and successful adolescent employment programs.

In order to translate information and develop capacity, empirical research is essential. It helps stakeholders comprehend, assess, and take advantage of new opportunities and problems in the digital economy. Researchers may help local research capacity grow, promote evidence-based decision-making, and equip stakeholders to deal with the challenges of the digital age by producing empirically grounded information.

With these things in mind, empirical study that looks into how the internet economy affects young employment in Ghana is most definitely necessary. Research of this kind can close current knowledge gaps, improve our comprehension of the dynamics of young employment in the digital era, and offer practitioners, policymakers, and other stakeholders useful insights. This study aims to close this research gap and provide a more sophisticated understanding of the advantages and disadvantages of digitalization and young employment in Ghana.

II. LITERATURE REVIEW

Theoretical Perspectives on the Digital Economy, Youth Employment, and Their Intersection

Comprehending how the digital economy affects young employment requires a strong conceptual framework that incorporates theoretical viewpoints from several academic fields. The primary theoretical frameworks that guide our comprehension of the digital economy, the dynamics of youth employment, and the interface between these fields are examined in this part.

Human Capital Theory

The idea behind human capital theory is that investments in learning, growth of skills, and education increase people's earning potential and productivity [7]. Human capital theory emphasizes the value of providing young people with pertinent digital skills in the context of the digital economy in order to increase their employability and flexibility in a labor market that is changing quickly [8]. Youth may better manage the complexity of the digital economy and take advantage of growing possibilities in digital sectors by investing in their digital literacy, technical proficiency, and problem-solving skills.

Digital Divide Theory

According to Warschauer (2003), the digital divide theory highlights differences in how different demographic groups, socioeconomic classes, and geographical areas use and have access to digital technologies. The digital divide increases disparities in the context of youth employment by denying marginalized youth access to digital tools, online resources, and training in digital skills [9]. In order to encourage inclusive and equitable participation in the digital economy and guarantee that all young people have the chance to use digital technology for socioeconomic growth, it is imperative that the digital gap be addressed.

Innovation Diffusion Theory

According to innovation diffusion theory, social networks, perceived benefits, and compatibility with current practices are only a few of the variables that impact how quickly and predictably ideas are adopted and spread [10]. When it comes to young people working in the digital economy, this theory emphasizes how important social networks, peer pressure, and institutional support are in helping young people embrace digital technology and start their own businesses [11]. Policymakers and practitioners can create interventions that hasten youth adoption of digital technologies and promote an innovative and entrepreneurial culture by comprehending the dynamics of innovation dissemination.

By synthesizing these theoretical perspectives, the conceptual framework provides a comprehensive lens through which to analyze the influence of the digital economy on youth employment. Drawing on insights from human capital theory, digital divide theory, and innovation diffusion theory, this study seeks to elucidate the mechanisms underlying youth's participation in the digital economy and inform evidence-based interventions aimed at promoting inclusive and sustainable youth employment outcomes.

Review of relevant literature on youth employment trends, digitalization, and economic development in Ghana.

A thorough analysis of pertinent research on youth employment patterns, digitalization programs, and economic development tactics is required to comprehend how the digital economy affects youth employment in Ghana. An summary of the most important discoveries drawn from previous research and academic publications in these fields is given in this section.

Youth Employment Trends in Ghana

Empirical research has brought attention to Ghana's ongoing problems with youth unemployment and underemployment [12]. The youth unemployment rate is still high, with a large percentage of young people working in precarious jobs in the unofficial sector, even in the face of economic progress and several government measures targeted at encouraging youth employment [13]. Ghanaian youth have serious socioeconomic issues as a result of structural limitations that worsen youth unemployment. These include restricted access to school, skills mismatches, and inadequate job development.

Digitalization Initiatives and Policy Frameworks

Ghana has advanced digitalization programs and used technology to boost the country's economy with noteworthy success. The government's commitment to leveraging digital technology to spur innovation, improve service delivery, and encourage inclusive growth is demonstrated by the National Digital Transformation Agenda (NDTA) and the Digital Ghana Agenda 2020. Expanding digital infrastructure, enhancing governance, and promoting digital inclusion are the goals of initiatives like the National Identification System (NIS), e-Government platforms, and digital financial services (World Bank, 2020). Nevertheless, obstacles including a lack of digital literacy, poor infrastructure, and legislative limitations make it difficult for digitalization projects to be implemented successfully and have the desired effect [14]

Economic Development Strategies and Youth Empowerment

Ghana's economic development plans place a strong emphasis on the role that entrepreneurship and youth empowerment play in promoting sustainable development. The National Youth Employment Program (NYEP) and the National Youth Policy (NYP) highlight the government's dedication to combating youth unemployment by promoting entrepreneurship, providing training, and developing skills. Furthermore, programs like the National Entrepreneurship and Innovation Plan (NEIP) and the Youth Enterprise Support (YES) program work to support youth-led businesses by making it easier for them to access capital and market opportunities [15]. However, overcoming systemic obstacles including access to capital, connections to markets, and regulatory limitations is necessary for these initiatives to be effective in encouraging adolescent employment and entrepreneurship [6].

In conclusion, the analysis of the literature highlights the intricate interactions that exist between Ghana's economic development policies, digitization initiatives, and trends in young employment. While efforts towards digitalization have the potential to increase productivity, stimulate innovation, and open up new job opportunities, it is also critical to address structural limitations and promote inclusive growth. Through the integration of existing literature, this study seeks to enhance comprehension of the prospects and obstacles linked to youth employment in the digital economy. Additionally, it seeks to provide evidence for policy interventions that are grounded in evidence and targeted at advancing equitable and sustainable livelihoods for young people in Ghana.

Synthesis of existing studies examining the impact of the digital economy on employment dynamics globally and in African contexts.

Many academic studies have looked at the complex effects of the digital economy on job dynamics in African contexts as well as elsewhere. This synthesis offers a summary of the most important conclusions and revelations drawn from previous research, emphasizing recurring themes, difficulties, and possibilities.

Research examining how the digital economy is changing job dynamics globally has shown a complex picture that is full of opportunities as well as challenges. Digital technologies have resulted in job displacement and skills mismatches as a result of the automation and restructuring of traditional industries, even though they have also helped to create jobs in sectors like information technology, e-commerce, and digital services [16].

The emergence of platform-based gig economy models has further transformed employment relationships, offering flexibility but also raising concerns about labor rights and social protections . Overall, the global discourse underscores the need for adaptive policies and proactive labor market interventions to harness the potential of the digital economy while mitigating its adverse effects on employment.

Empirical research has demonstrated how the digital economy has the capacity to revolutionize African environments by boosting productivity, generating new job possibilities, and accelerating economic growth. Particularly in industries like agriculture, healthcare, and financial services, digital platforms and mobile technology have made it easier for people to start their own businesses, access markets, and participate in the financial system. Successful digital innovations that have increased access to financial services and market information, empowering smallholder farmers and micro-entrepreneurs, as demonstrated by programs like Ghana's eSoko and Kenya's M-PESA [17]. The full fulfillment of the digital economy's promise to promote equitable and sustainable development is hampered by issues including infrastructure limitations, regulatory hurdles, and gaps in digital literacy.

Across global and African contexts, several emerging themes have garnered attention in the literature. These include the role of digital skills development in enhancing employability and fostering innovation, the importance of digital infrastructure and connectivity in enabling digital entrepreneurship and market access, and the need for supportive policy frameworks that promote digital inclusion, investment, and innovation [18]. Additionally, scholars have emphasized the importance of addressing digital divides along gender, socio-economic, and geographical lines to ensure that marginalized populations are not left behind in the digital transformation.

In summary, existing studies provide valuable insights into the impact of the digital economy on employment dynamics, offering a nuanced understanding of the opportunities and challenges across diverse global and African contexts. By synthesizing these insights, this study aims to contribute to a deeper understanding of the digital economy's influence on

ISSN 2348-3156 (Print)
International Journal of Social Science and Humanities Research ISSN 2348-3164 (online)
Vol. 12, Issue 2, pp: (145-158), Month: April - June 2024, Available at: www.researchpublish.com

youth employment in the Ghanaian context and inform evidence-based policy interventions that promote inclusive and sustainable employment outcomes.

III. CONCEPTUAL FRAMEWORK AND HYPOTHESES DEVELOPMENT

The conceptual framework employed in this study provides a theoretical lens through which to examine the complex interplay between the digital economy and youth employment dynamics in the Ghanaian context. Drawing on insights from multidisciplinary perspectives, the conceptual framework elucidates the underlying mechanisms and processes that shape youth's engagement with digital technologies and their implications for employment outcomes.

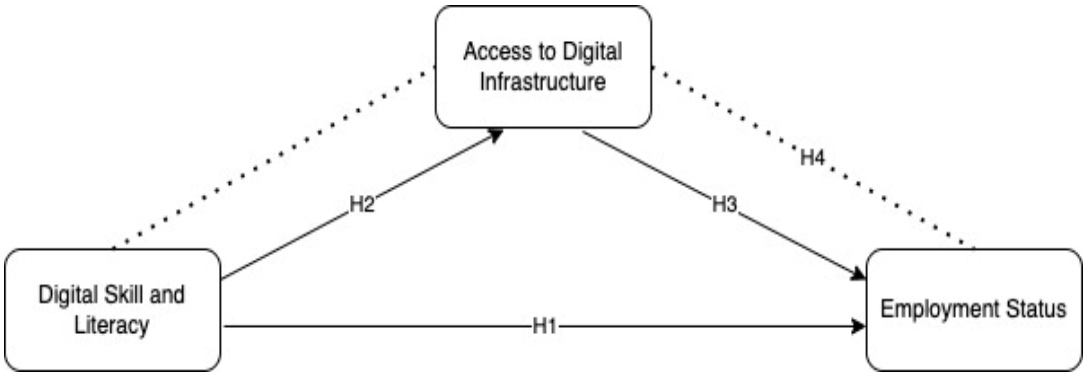

Figure1: Conceptual Framework

Hypotheses Development

The hypotheses developed for this study are derived from the conceptual framework, which integrates theoretical perspectives on the digital economy, youth employment, and their intersection. These hypotheses are formulated to test the influence of the digital economy on youth employment outcomes in Ghana and to explore potential moderating or mediating factors that shape this relationship.

H1: Increased digital skills and literacy among Ghanaian youth are positively associated with higher levels of employment status.

Drawing from human capital theory, which posits that investments in skills increase earning potential and employability, this hypothesis examines whether greater digital skills relate to improved employment outcomes for Ghanaian youth.

This posits that youth equipped with digital skills and literacy are better positioned to secure employment opportunities in digital sectors, aligning with human capital theory, which emphasizes the importance of skills development for enhancing employability [7]. This hypothesis is relevant to the study's theoretical framework as it explores the role of digital skills in shaping youth employment outcomes in the context of the digital economy.

H2: Digital skills and literacy among Ghanaian youth are positively associated with higher levels of Access to Digital Infrastructure.

Ghanaian youth who possess higher levels of digital skills and literacy are likely to be more adept at utilizing digital technologies effectively. These skills may include proficiency in using computers, navigating the internet, utilizing software applications, and leveraging digital communication platforms [19]. Individuals with advanced digital skills are often better equipped to engage with various aspects of the digital economy, including accessing online educational resources, participating in digital entrepreneurship ventures, and seeking employment opportunities in technology-driven sectors.

H3: Access to digital infrastructure positively influences youth employment status in Ghana.

Building on innovation diffusion theory and its emphasis on how access to innovations drives adoption, this hypothesis tests whether infrastructure access impacts youth job statuses.

This suggests that access to digital infrastructure and connectivity positively influences youth entrepreneurship and self-employment opportunities, drawing on innovation diffusion theory's insights into the adoption and dissemination of innovations [20]. This hypothesis contributes to the theoretical framework by examining the impact of digital infrastructure on youth entrepreneurship and job creation in Ghana.

Hypothesis 4: Access to digital financial services mediates the relationship between digital skill and literacy and youth employment outcomes, with greater access leading to higher levels of employment and income generation.

This proposes that access to digital financial services mediates the relationship between digital entrepreneurship initiatives and youth employment outcomes, drawing on innovation diffusion theory's insights into the role of digital innovations in fostering economic development [17]. This hypothesis expands the theoretical framework by exploring the mechanisms through which digital financial services facilitate youth entrepreneurship and income generation in Ghana.

IV. METHODOLOGY

Research Design

The research design is the blueprint for data collection and analysis that aligns with the research questions[21].

The study's methodology is designed to align with the conceptual framework and hypotheses, which explore the influence of the digital economy on youth employment outcomes in Ghana [22].

A mixed-methods approach was adopted to provide a comprehensive understanding of the complex dynamics at play. The quantitative component involved surveying a representative sample of Ghanaian youth to collect data on digital skills, employment status, and access to digital infrastructure, The qualitative component will entail in-depth interviews with key stakeholders, including policymakers, educators, employers, and youth representatives, to gain insights into contextual factors and the lived experiences of Ghanaian youth in navigating the digital economy.

Source of Data and Data Collection

Primary data was collected from 350 youths in Ghana's through self-administered questionnaires. The study employed a non-probability purposive sampling technique, selecting participants based on judgment and expertise[23]. The data collection process was structured and organized, involving the use of a structured questionnaire and interviews designed to measure digital skills, employment status, access to digital infrastructure.

Questionnaire Design and Administration

The questionnaire design underwent rigorous review and validation to ensure its reliability and validity. It was divided into two sections: demographic attributes and Likert-scale statements addressing the research variables. The Likert-scale ranged from strongly disagree to strongly agree, providing a systematic framework for respondents to express their opinions[24]. Ethical clearance and permission were obtained from participants before data collection.

Population Definition and Sample Size

The target population for this study consisted of youths in Ghana's, specifically in Accra. Due to the heterogeneity of the population, purposive sampling was used to select a sample size of 450 participants, a number considered sufficient for statistical power [25]. The final sample included 350 valid responses resulting in a response rate of 77.78%.

Data Analysis Techniques

Data analysis was conducted using IBM SPSS version 22 for descriptive statistics, reliability analysis, and regression analysis. SMARTPLS version 4 was employed for confirmatory factor analysis and structural equation modeling. Reliability and validity assessments were performed to ensure the quality of the data and the measurement instruments[26]. Constructs were measured using Likert-scale items, and their reliability and validity were established through various techniques, including Cronbach's alpha and confirmatory factor analysis.

V. DATA ANALYSES

The research consisted of both exploratory and confirmatory studies to establish the model's validity. Descriptive statistics were processed using SPSS version 26.0 to examine the respondents' demographic information. The research model was assessed using Partial Least Squares (PLS) analysis conducted with SmartPLS 4.0 software. The measurement model underwent testing to ensure the validity and reliability of the constructs. The structural model was analyzed following the recommended procedures for Structural Equation Modeling (SEM) as outlined by Hair Jr, Hult [27]. The significance of path coefficients and loadings was examined using a bootstrapping method with 5000 resamples [27]. Additionally, PLSpredict, as suggested by Shmueli, Sarstedt [28], was utilized to assess the degree of prediction error.

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International Journal of Social Science and Humanities Research ISSN 2348-3164 (online)
Vol. 12, Issue 2, pp: (145-158), Month: April - June 2024, Available at: www.researchpublish.com

Table 1: Demographic Characteristics of respondents and their firms

		Frequency	Percentage
Gender	Male	185	52.9
	Female	165	47.1
Education	Primary	24	6.9
	Secondary	228	65.1
	Tertiary	98	28.0
Age	Less than 18 Year	31	10.6
	18-24 Years	172	49.1
	25-34 Years	111	31.7
	35-44 Years	29	8.3
	Above 45 Years	1	.3

Table 1 presents the demographic characteristics employed in the study. Gender is split as 52.9% male and 47.1% female. Education levels found most with secondary at 65.1%. Tertiary education made up 28%. Primary education came next at 6.9%. Age group sizes were largest at 25-34 years old making up 31.7%. Below 18 years was 10.6%, 35-44 was 8.3% and 45+ years was 0.3%.

Preliminary test (Measurement Model Assessment)

The objective was to validate the measurement scales for Digital Skill And Literacy (DSL), Access to Digital Infrastructure (ADI), and Employment Status (ES) and ensure items were loaded onto the hypothesized constructs. This establishes the psychometric properties. Table 2 examines the measurement model by reporting the constructs' reliability, composite reliability (CR) and average variance extracted (AVE). Reliability was measured using Cronbach's alpha (CA) and CR. The CA and CR results were: DSL (0.93, 0.94), ES (0.812, 0.927), and ADI (0.896, 0.919), respectively. As per Hair et al. (2013), CA and CR should exceed 0.70 which is the threshold, indicating the values were in an acceptable range.

Additionally, convergent validity was assessed by obtaining AVE values. All values surpassed the 0.5 threshold: DSL (0.784), ES (0.647) and ADI (0.705), as suggested by Hubona et al. (2021). Kock [29] stated that VIF values exceeding five indicate the presence of collinearity in a model, whereas values below five suggest the absence of collinearity issues. In this particular study, the evaluation of VIF values (refer to **Table 2**) revealed values below 5, indicating no evidence of collinearity in the model. This in line with studies conducted by [30, 31]. In summary, the measurement model demonstrates adequate reliability, convergent validity and no issues with multicollinearity among the DSL, ADI and ES constructs.

Table 2: Factor Loadings, Cronbach's Alpha, Composite Reliability, Average Variance Extracted and Variance Inflation Factor

Measurement Items	Item Codes	Factor Loadings	CA	CR	AVE	VIF
Digital Skill And Literacy	DSL1	0.965	0.93	0.94	0.784	4.774
	DSL2	0.916				4.821
	DSL3	0.832				2.512
	DSL4	0.862				2.742
	DSL5	0.845				2.665
Access to Digital Infrastructure	ADI1	0.765	0.896	0.919	0.705	4.341
	ADI2	0.823				4.944
	ADI 3	0.817				2.254
	ADI4	0.912				3.877
	ADI5	0.872				3.167
Employment Status	ES1	0.915	0.812	0.927	0.647	3.38
	ES2	0.844				2.245
	ES3	0.822				1.024
	ES4	0.911				3.532
	ES5	0.925				4.037

Note: CA - Cronbach's alpha, CR - Composite reliability, AVE - Average variance extracted, Variance Inflated Factor

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International Journal of Social Science and Humanities Research ISSN 2348-3164 (online)
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Discriminant Validity

To assess the discriminant validity of the model, the Fornell-Larcker's Criterion is initially employed. This criterion evaluates the extent to which each variable in the model's analysis does not duplicate itself. The results presented in **Table 3** demonstrate that the square root of the average variance extracted (AVE) for each individual construct (diagonal values) is greater than the corresponding correlation coefficients, indicating satisfactory discriminant validity [32]

Table 3: Discriminant Validity (Fornell – Larcker Criterion)

	ADI	DSL	ES
ADI	**0.839**		
DSL	0.17	**0.885**	
ES	0.208	0.288	**0.804**

Note: Values on the diagonal (bolded) are the AVE'S square root, while the off-diagonals are correlations. ADI - Access to Digital Infrastructure; DSL - Digital Skill And Literacy; ES - Employment Status

Some criticisms of the Fornell and Larcker [32] criteria suggest they do not properly identify a lack of discriminant validity. Henseler, Ringle [33] proposed an alternative approach using the heterotrait-monotrait (HTMT) ratio of correlations based on the multi-trait-multi-method matrix to measure the discriminant validity. This study employed this new HTMT method to assess discriminant validity. The findings are shown in **Table 3**. If the HTMT value exceeds the threshold of 0.90 as Kline (2011) suggested, it indicates a discriminant validity issue. However, as presented in **Table 4**, all the values were below the 0.90 HTMT cutoff, suggesting discriminant validity was not a problem.

Table 4: Discriminant Validity (Heterotrait – Monotrait Criterion)

	ADI	DSL	ES
ADI			
DSL	0.184		
ES	0.243	0.335	

Note: Shaded sections are standard reporting procedures for HTMT. ADI - Access to Digital Infrastructure; DSL - Digital Skill And Literacy; ES - Employment Status

Direct Effects

Table 5 presents the structural model results including path coefficients, standard errors, t-values and p-values for the hypothesized relationships. The PLS-SEM findings show: (H1) Digital Skill and Literacy has a positive, significant effect on Employment Status ($\beta = 0.26$, $t = 4.955$, $p < 0.05$); (H2) Access to Digital Infrastructure positively, significantly influences Employment Status ($\beta = 0.164$, $t = 2.915$, $p < 0.05$); (H3) Digital Skill and Literacy has a significant, positive effect on ($\beta = 0.172$, $t = 3.007$, $p < 0.05$).

Thus, H1, H2 and H3 are supported as the DSL->ADI, ADI->ES and DSL->ES relationships are statistically significant.

Table 5: Direct Relationship

Hypothesis	Relationships	B Coefficient	T statistics	P values	Decision
H1	DSL -> ADI	0.171	3.364	0.001	Supported
H2	ADI -> ES	0.164	2.915	0.004	Supported
H3	DSL -> ES	0.261	4.955	0.000	Supported

Indirect Effect

We to bootstrap the whole study equation to test for the indirect relationship. **Table 6** shows a significant indirect effect from DSL to ES mediated by ADI ($\beta = 0.028$, $t = 2.108$, $p = 0.035$), backing H4.

Table 6: Indirect Relationship

Hypothesis	Relationship	B Coefficient	T statistics	P values	Decision
H4	DSL -> ADI -> ES	0.028	2.108	0.035	Supported

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PLS Predict

The current study obtained its Q^2 value through employing the cross-validated redundancy method. A Q^2 value greater than zero indicates the model possesses predictive relevance, whereas a Q^2 less than zero means the model lacks predictive relevance. Accordingly, the study's Q^2 exceed 0.1, as presented in **Table 7, which** suggests the model demonstrates acceptable predictive relevance, as the value is above zero.

Table 7: PLS Predict

	Q^2predict	RMSE	MAE
ADI	0.106	0.995	0.825
ES	0.262	0.865	0.798

By testing multiple relationships simultaneously, SEM provides superior explanatory ability. Finally, **Figure 2** depicts the full structural equation model with all hypothesized relationships strongly supported.

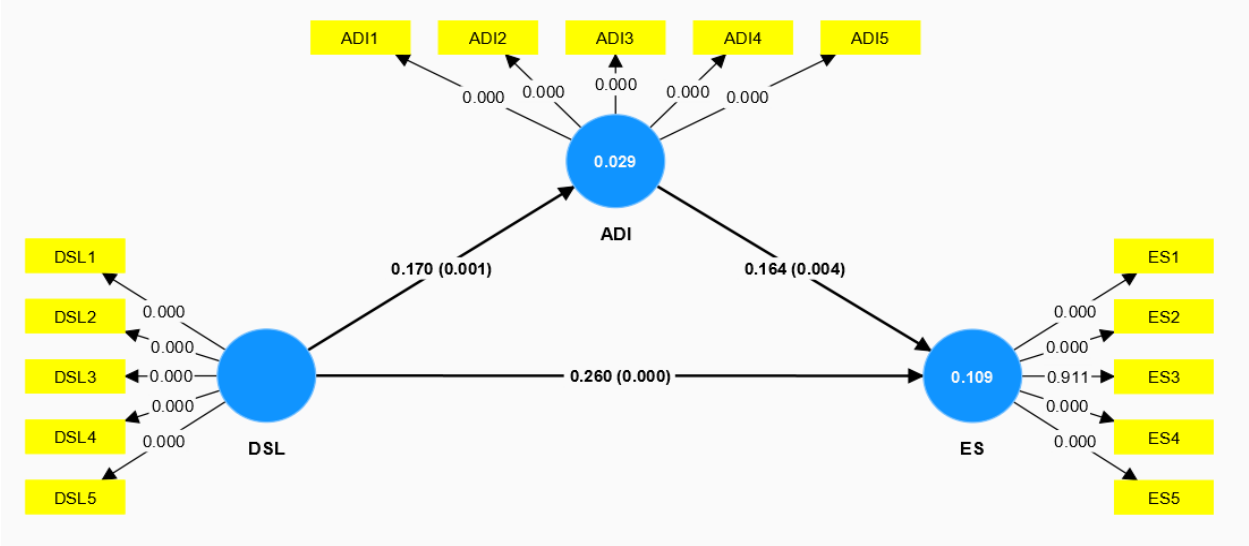

Figure 2: Structural Equation Model

VI. DISCUSSION

Interpretation of Findings in Relation to the Study's Objectives and Existing Literature

The findings of the study shed light on the relationship between the digital economy and youth employment in Ghana, aligning with the study's objectives and contributing to the existing literature. The study aimed to deepen understanding of how the digital economy affects youth employment in Ghana, and the findings provide valuable insights in this regard.

Firstly, the study highlights the transformative potential of the digital economy in creating new job opportunities for young people. The integration of digital technologies into various sectors, such as software development, e-commerce, digital finance, and telecommunications, has led to the emergence of new job categories and skill requirements. This finding resonates with existing literature that emphasizes the impact of digitalization on labor markets worldwide [16].

Secondly, the study acknowledges the challenges faced by young people in navigating the digital economy. While the digital economy offers opportunities for employment, it also presents drawbacks such as potential wage inequality and exacerbation of existing inequalities. These findings are consistent with concerns raised in the existing literature regarding the uneven distribution of benefits and the potential impact on workers' wages.

Exploration of Mechanisms Through Which the Digital Economy Influences Youth Employment Dynamics in Ghana

The study delves into the mechanisms through which the digital economy influences youth employment dynamics in Ghana. It recognizes the importance of digital literacy, technical proficiency, and problem-solving skills for young people to

effectively engage with the complexities of the digital economy. This aligns with the human capital theory, which emphasizes the value of investing in relevant skills and education to enhance employability and adaptability in a rapidly changing labor market [12].

Furthermore, the study addresses the concept of the digital divide and its implications for youth employment. It acknowledges that marginalized youth may face barriers in accessing digital tools, online resources, and digital skills training, thereby limiting their participation in the digital economy. This finding resonates with the digital divide theory, which highlights disparities in access to and usage of digital technologies among different demographic groups and socioeconomic classes [34].

Analysis of Challenges and Opportunities for Youth Participation in the Digital Economy and Implications for Policy and Practice

The study identifies both challenges and opportunities for youth participation in the digital economy in Ghana, offering implications for policy and practice. It acknowledges the persistently high youth unemployment rate in Ghana and the prevalence of underemployment and informal employment among young people. These challenges restrict their access to professional growth, social protection, and stable income [35]. The study emphasizes the need for policies and interventions that address these challenges and promote inclusive and sustainable employment opportunities for young people in the digital age.

On the other hand, the study highlights the potential benefits of the digital economy for youth employment. It identifies the role of government-led programs, such as the National Digital Transformation Agenda and the Digital Ghana Agenda 2020, in fostering digital inclusion and supporting innovation. These initiatives present opportunities for young Ghanaians to harness the benefits of digitization and establish stable livelihoods.Based on these findings, policymakers, educators, employers, and other stakeholders are encouraged to develop evidence-based policies and interventions. These should focus on enhancing digital skills training, reducing the digital divide, and creating an enabling environment for youth employment in the digital economy [36]. By addressing the challenges and capitalizing on the opportunities presented by the digital economy, Ghana can empower its young population and promote equitable and long-term youth employment.

In conclusion, the study's findings provide a comprehensive interpretation of how the digital economy influences youth employment dynamics in Ghana. The exploration of mechanisms, challenges, and opportunities offers valuable insights for policymakers, practitioners, and researchers to develop targeted interventions and policies that maximize the benefits of the digital economy while addressing the specific needs and aspirations of young Ghanaians.

VII. IMPLICATIONS AND RECOMMENDATIONS

Policy Implications:

Recommendations for policymakers to foster an enabling environment for youth engagement in the digital economy.

Enhance Digital Skills Training: Policymakers should prioritize initiatives that provide comprehensive digital skills training programs for young people. These programs should focus on equipping them with the necessary technical and digital literacy skills to effectively participate in the digital economy. Collaboration with educational institutions, industry experts, and technology companies can help design relevant and up-to-date training modules.

Bridge the Digital Divide: Efforts should be made to reduce the digital divide by ensuring equitable access to digital tools, resources, and connectivity. Policymakers can collaborate with telecommunications providers, NGOs, and community organizations to expand internet infrastructure and provide affordable access to digital technologies in underserved areas. This will help overcome barriers and ensure equal opportunities for all young people to participate in the digital economy.

Foster Entrepreneurship and Innovation: Policymakers should create an enabling environment for youth entrepreneurship and innovation in the digital sector. This can include simplifying bureaucratic procedures, providing financial support and incentives, and establishing incubation centers and startup hubs. Encouraging collaboration between young entrepreneurs, established businesses, and research institutions can promote the development of innovative digital solutions and job creation.

Practical Implications:

Strategies for stakeholders to address barriers and leverage opportunities for youth employment in digital sectors.

Strengthen Public-Private Partnerships: Stakeholders, including government agencies, private sector organizations, and civil society, should collaborate to create effective public-private partnerships. These partnerships can facilitate the design and implementation of initiatives that promote youth employment in the digital economy. By combining resources, expertise, and networks, stakeholders can develop comprehensive programs that address barriers and leverage opportunities for young people.

Provide Mentorship and Networking Opportunities: Stakeholders should establish mentorship programs and networking platforms that connect young people with experienced professionals in the digital sector. Mentors can provide guidance, share industry insights, and help young individuals develop their professional networks. Access to mentors and networking opportunities can enhance young people's employability and facilitate their integration into the digital job market.

Promote Digital Entrepreneurship Support: Stakeholders should offer support mechanisms specifically tailored to young digital entrepreneurs. This can include access to funding, incubation programs, business development resources, and mentorship. By nurturing a supportive ecosystem for digital entrepreneurship, stakeholders can encourage young people to pursue their entrepreneurial ambitions and contribute to the growth of the digital economy.

Suggestions for Future Research:

To further explore the evolving relationship between the digital economy and youth employment in ghana.

Longitudinal Studies*:* Conduct long-term studies tracking the impact of the digital economy on youth employment, examining sustainability, changing skill requirements, and overall trajectories.

Sector-Specific Studies: Investigate the dynamics of youth employment in specific digital sectors to analyze skills, trends, challenges, and opportunities within each sector.

By implementing these policy and practical recommendations and conducting further research, policymakers, stakeholders, and researchers can foster an environment that maximizes the benefits and opportunities of the digital economy while addressing barriers and ensuring inclusive and sustainable youth employment in Ghana.

VIII. CONCLUSION

In conclusion, this study aimed to explore the influence of the digital economy on youth employment in Ghana and provide valuable insights into this dynamic relationship. By examining the experiences, goals, and challenges faced by young people in navigating the digital economy, the study has shed light on key findings and contributed to advancing our understanding of this topic in the Ghanaian context.

The study's key findings highlight the transformative potential of the digital economy for young employment in Ghana. It has been observed that the increasing integration of digital technologies into economic operations has led to the emergence of new job opportunities while restructuring and automating existing ones. The digital economy has the capacity to boost productivity, spur economic growth, and open up new avenues for employment. However, it also poses challenges, such as the uneven distribution of wages and the potential exacerbation of inequality.

Moreover, the study revealed that Ghana, like many other African countries, faces the dual challenge of leveraging the promise of the digital economy while addressing youth unemployment and underemployment. With a significant youth population and a growing demand for digital technologies, understanding the dynamics of youth employment in the digital economy becomes crucial for policymakers, educators, employers, and other stakeholders.

The study's contributions lie in providing empirical evidence and a deeper comprehension of the relationship between technology, employment, and youth development in Ghana. By bridging the research gap in the Ghanaian context, the study has produced culturally relevant insights that can inform evidence-based policies and interventions. It has offered practical guidance for policymakers to create inclusive and sustainable work possibilities for young Ghanaians in the digital age.

In conclusion, this study has deepened our understanding of the influence of the digital economy on youth employment in Ghana. The findings emphasize the transformative potential of digital technologies while highlighting the challenges and opportunities they present. By informing evidence-based policies and interventions, this research contributes to empowering young Ghanaians and fostering inclusive and sustainable work opportunities in the digital age. Continued research in this field will further enhance our knowledge and guide future efforts to harness the full potential of the digital economy for youth development.

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