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COMPARATIVE ANALYSIS OF THE IMPORTANCE OF ARTIFICIAL INTELLIGENCE IN ADDRESSING SKILL GAPS IN COMMERCIAL BANKS IN NIGERIA AND UNITED KINGDOM

КОМПАРАТИВНА АНАЛИЗА ЗНАЧАЈА ВЈЕШТАЧКЕ ИНТЕЛИГЕНЦИЈЕ У ПРЕВАЗИЛАЖЕЊУ ЈАЗА ВЈЕШТИНА У КОМЕРЦИЈАЛНОМ БАНКАРСТВУ НИГЕРИЈЕ И УЈЕДИЊЕНОГ КРАЉЕВСТВА

Summary: The disparities in AI adoption and its effect on skill gaps in the commercial banking sectors of Nigeria and the UK was explored in this study. In Nigeria, AI implementation faces barriers due to inadequate technological infrastructure, outdated educational curricula and limited access to AI training. In contrast, the UK, which has embraced AI more readily, grapples with concerns over data privacy and ethical consequences. Using a qualitative approach, the study analyzed data from academic literature, policy and appropriate documents published through a thematic analysis. The findings reveal that addressing the skills gap and improving infrastructure is crucial for effective AI adoption. AI enhances customer service efficiency but with challenges related to inadequate investment in job training and job displacement. While the UK has made progress in integrating AI due to its advanced technological infrastructure and robust training programs, Nigeria lags due to slow AI adoption, insufficient infrastructure, and limited training opportunities. The study concludes that significant disparities exist in AI skills between Nigeria and the UK, influenced by differences in technological infrastructure, education, and policy. It recommends that Nigeria prioritize improving infrastructure, updating educational systems, and the need to develop training programs which the skill gap in the country. In the UK, the focus should remain on addressing ethical concerns and data privacy to sustain successful AI integration.

Keywords: Artificial Intelligence, Skill gap, Commercial Bank, Nigeria, United Kingdom

JEL Classification:

JEL Classification: O33, J24, G21

Резиме: Овај рад истражује разлике у примјени вјештачке интелигенције (ВИ) и њен утицај на јаз у вјештинама у секторима комерцијалног банкарства Нигерије и Уједињеног Краљевства. У Нигерији имплементација ВИ наилази на препреке због недовољно развијене технолошке инфраструктуре, застарјелих образовних курикулума и ограниченог приступа обукама из области ВИ. Насупрот томе, Уједињено Краљевство, које је у већој мјери прихватило ВИ, суочава се с изазовима који се односе на заштиту података и етичке импликације. Кориштењем квалитативног приступа, истраживање је анализирано податке из академске литературе, јавних политика и релевантних докумената приликом тематске анализе. Резултати показују да је смањење јаз у вјештинама и унапређење инфраструктуре од пресудне важности за успјешну примјену ВИ. Вјештачка интелигенција унапређује ефикасност у пружању услуга корисницима, али истовремено доноси изазове у виду недовољних улагања у обуку запослених и ризика од губитка радних мјеста. Док је Уједињено Краљевство остварило значајан напредак у интеграцији ВИ захваљујући напредној технолошкој инфраструктури и свеобухватним програмима обуке, Нигерија заостаје због споријег темпа усвајања ВИ, недостатка инфраструктуре и ограничених могућности за развој компетенција. Студија закључује да постоје значајне разлике у вјештинама повезанима са ВИ између Нигерије и Уједињеног Краљевства, које произлазе из разлика у технолошкој развијености, образовним системима и регулаторним политикама. Препоручује се да Нигерија приоритетно ради на унапређењу инфраструктуре, модернизацији образовног система и развоју програма обуке ради смањења јаз у вјештинама. У Уједињеном Краљевству фокус би требало задржати на рјешавању етичких питања и заштити приватности података како би се осигурало одрживо и успјешно укључивање вјештачке интелигенције у пословање.

Кључне ријечи: вјештачка интелигенција, јаз у вјештинама, комерцијалне банке, Нигерија, Уједињено Краљевство
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INTRODUCTION

Globally, the relevance of artificial intelligence (AI) in addressing skill gaps in banking sector has become subject of increasing importance given the developing landscape of financial services. This study highlights the need to adapt to rapidly advancing AI technologies for more competitive strength and responsive to market demands. The need for integration of AI into banking sector is not only a response to technological innovations but also a necessary strategy to bridge the significant skill gaps that hinder the efficient operation of these institutions. In Nigeria, commercial banks face acute challenges in aligning workforce capabilities with modern AI demands, while banks in the UK have made more progress but still struggle to ensure their workforce possesses necessary skills. This difference highlights the need to address skill gaps in banking, both theoretically and practically.

AI streamlines operations, enhances decision-making, and improves customer service; however its successful implementation has been dependent on a skilled workforce adept at handling advanced technologies. Disruptive technologies like AI require innovative skills in data science, machine learning, and software development, which are often lacking in emerging markets such as Nigeria (Strusani and Hounbonon 2023). Conversely, the UK has educational institutions and corporate training programs more aligned with AI demands, facilitating smoother AI integration and greater operational efficiency (Biallas and O'Neill 2024). The Human Capital Theory assert that education and training increases workforce productivity and economic growth (Okolie et.al. 2019)), while the assertion from Technology Acceptance framework expound on the acceptance of technology by the user based on importance of technology and its easy usage (Davis 1989).

While literature on AI and skill gaps in banking has grown, findings are mixed. AI enhance financial inclusion by lowering costs and expanding access, but it may also lead to job displacement, necessitating upskilling (Bassey and Owushi 2023). Policies addressing skill gaps vary in effectiveness, with the UK making proactive efforts to integrate AI into financial services curricula, while Nigeria's policies often lack coordination and a strong educational framework (Osuiugbo and Alabi 2021).

The current realities in Nigeria's banking sector reveal disparities in skill levels, technological infrastructure, and regulatory frameworks. Slow AI adoption, inadequate infrastructure, and regulatory challenges hinder Nigeria's banking sector, while the UK's rapid integration of AI has improved efficiency and customer service (Kshetri 2021). Statistical data indicates that AI-driven solutions have led to reduced operational costs and increased customer satisfaction in the study emphasizes the need for targeted interventions in Nigeria to ensure equitable distribution of AI benefits (Strusani and Hounbonon 2023)

Despite advancements, AI implementation in financial services faces challenges like data privacy concerns and the digital divide, particularly in Nigeria where these issues disproportionately affect rural and lower-income communities (Kshetri 2021). The lack of infrastructure further hampers effective AI deployment in emerging markets (Strusani and Hounbonon 2023). This study aims to analyze the specific challenges in Nigeria's banking sector concerning AI adoption, comparing these findings with experiences from the UK to better understand factors influencing successful AI integration and workforce development. The literature suggests that while AI can revolutionize banking, its benefits remain unevenly distributed, with significant barriers in less developed markets (Strusani and Hounbonon 2023). By focusing on the specific conditions and realities of the Nigerian banking sector, this study aims to provide a more targeted analysis that can inform both practices and policies. The comparison with the UK banking sector provides a useful benchmark, allowing for a better review of factors that causes successful integration and workforce development. The objectives of the study are: to examine the level of AI skills among commercial banks employees in Nigeria; assess the level of AI skills of employees within commercial banks in UK; examine compare the level of AI skills of commercial banks in Nigeria and UK; compare how AI adoption affect the level of skill among commercial banks employees in Nigeria and UK

The study will address the gaps in the literature by providing insight on role of AI in closing the skill gaps of commercial banks employees in Nigeria and the UK. While previous studies have explored the effect of artificial intelligence on various industries, there has been limited focus on its specific effects on skill development in the banking sector of emerging economies like Nigeria. By providing a detailed comparative analysis, this study fills a crucial gap in understanding how AI can effectively be utilized to increase workforce capabilities in different economic contexts. Furthermore, this study addresses the existing knowledge gap by comparing the experiences of Nigeria and the UK

in AI adoption in the banking sector. The study's comparative analysis of the experiences of the banking sector adoption of AI in both Nigeria and UK is particularly valuable as it provides a broader knowledge on how artificial intelligence can be harnessed to address skill gaps in diverse economic environments, highlighting the importance of context-specific approaches to AI integration.

The analysis focuses on recent developments in AI technology and its influence on banking skills, covering the latest trends and advancements up to the present year. By limiting the scope to the commercial banking sector, the research provides insights into how AI can bridge skill gaps and enhance workforce capabilities within these institutions. A comparative analysis methodology is employed, utilizing both quantitative and qualitative data to evaluate and compare AI skill levels among bank employees in Nigeria and the UK. This approach incorporates surveys, interviews, and secondary data analysis, offering comprehensive insights into the challenges of AI integration and skill gaps in both countries.

The remaining section of the study contains literature review, methodology, results and discussions and lastly, conclusion and recommendations.

2. LITERATURE REVIEW

Artificial Intelligence (AI) is a computer science multidisciplinary domain which focuses on capable systems invention built to carry out human related activities. The definitions provided in various studies highlight the multifaceted nature of AI. For instance, Ogunode et al. (2023) and Osuizugbo and Alabi (2021) emphasize the breadth of AI technologies which includes machine learning, NLP, robotics, and computer vision. These technologies are integrated for executing complex human related functions which engages machines in data analysis and making of autonomous decision. Artificial intelligence systems are classified into; Narrow AI (designed system for recognition of image and translation of language; General AI (designed to achieve high level of cognitive ability) and Artificial super intelligence; (Igbinenikaro and Adewusi 2024). However, practical integration of AI technologies into banking sector varies as robotic process automation are being used to execute task such as credit scoring, detection of fraud and customer service (Kshetri 2021; Mallah Boustani 2022).

The skill gaps in the construction industry refer to the discrepancies between the current skills of professionals and those necessary for effectively implementing emerging technologies. Adepoju and Aigbavboa (2020) emphasize that addressing these gaps is vital for the successful integration of advanced technologies, necessitating continuous skill updates to align with industry advancements. Skill acquisition, defined as obtaining competencies to perform tasks effectively, plays a crucial role in enhancing employability and self-reliance (Osita et al. 2022). This process encompasses both formal education and informal training, aiming to provide individuals with practical experience relevant to the labor market.

Education-job mismatch, a significant issue affecting graduate unemployment, arises from the disparity between graduates' qualifications and employers' requirements. Aminu (2019) identifies over qualification and underqualification as two manifestations of this mismatch, highlighting the difficulties graduates face in aligning academic credentials with practical job market demands.

Professional ICT skills, necessary for specialized tasks within specific environments such as libraries, include expertise in database management and library management systems (Basahuwa et al. 2020). Staying updated with emerging technologies is essential for librarians to enhance their professional capabilities. Employability skills, which encompass technical competencies and soft skills are critical for securing and excelling in employment.

Technical skills are defined by Okwudili (2024) as specific knowledge and abilities acquired through formal education, vocational training which are needed for specialized tasks or experience. In contrast, soft skills encompass personal attributes and interpersonal interactions, with Okwudili (2024) stating that they include communication, teamwork, and problem-solving, which are crucial for career success.

2.1. Theoretical Review

This study is grounded in Human Capital Theory, which underscores the need to invest in skills and knowledge of the employee in order to enhance organizational performance and competitiveness (Tula et al. 2023). This theory posits that human capital-collective skills, knowledge, and experience is vital for economic growth and organizational efficiency. The human capital theory expound on how artificial intelligence and machine learning support the development of human capital through appropriate training, analysis and evaluations (Strusani and Hounghonon 2024).

The Technology Acceptance theory/model (TAM) by Fred Davis in 1989 asserts that factors affecting technology acceptance which are technology's usefulness and easy usage. TAM illustrates how employee and customer perceptions of AI's usability and benefits impact adoption rates in the banking sector (Eke et al. 2023). Effective integration of AI requires that banks consider these perceptions to enhance user engagement (Yakubu 2024).

Everett Rogers propounded the Diffusion of Innovations Theory in 1962. This theory analyses the role of AI in promoting industrial sustainability and the potential disruption in industries (Goralski and Tan 2020).

Technological Determinism, initially proposed by Thorstein Veblen, posits that technology primarily drives change in the society by shaping behaviors and structures. It suggests that advancements like AI can bring about change in economic and social systems (Igbinenikaro and Adewusi 2024).

2.2. Empirical Review

Several studies abound on the impact of AI across various sectors by highlighting its effect on bank services, employee performance and financial inclusion. The study by Bankins and Formosa (2023) on ethical implication of AI expounded the conceptual framework by identifying three major pathways to deploying AI (these are replacement of task, tending of machine and amplification of skills). The findings from this study suggest that the effect of AI on meaningful work dimensions is dependent on the implementation of the organization. Conversely, Mirbabaie et al. (2022) investigate the identity threats from AI in the workplace using a mixed-methods approach, finding that changes in work structure and perceived status loss predict AI identity threats, impacting employee well-being. Mallah Boustani's quantitative research on effect of AI on Lebanon's banking services shows that while AI improves transaction efficiency, there is need for human interaction with the client. This contrasts Sheth et al. (2022) findings that emphasizes necessity of AI in banking operations and highlight the relevance of human intervention and personalized services in emerging markets.

Noreen et al. (2023) explore the perspective of consumer on AI adoption in banking services across five countries in Asia, revealing positive correlations between adoption intentions and factors such as awareness and perceived usefulness, while perceived risk negatively affects these intentions. Ukpogon (2024) evaluate the integration of AI in Nigeria banking services, noting improvements both in credit risk management and personalized banking, though no significant difference in opinions on AI effectiveness exists between bankers and accounting lecturers. Elegunde and Osagie (2020) find that AI enhances operational efficiency in Nigerian banks and advocate for broader adoption and educational reforms.

The study by Nnaomah et al. (2024) highlights comparative analysis of AI in US and Nigeria, there is advanced integration in the US while there is challenge of inadequate infrastructure in Nigeria. Salayet al. (2022) review the transformative effect of AI across sectors in Nigeria, noting challenges like system flaws in health sector and marketing. Additional studies examine micro-work's role in AI development (Tubaro et al. 2020) and critical skill requirements in the AI era (Jaiswal et al., 2024)

3. METHODOLOGY

3.1. Research Design

The qualitative methodology is adopted as the research design for the study because of its capacity to effectively examine the multifaceted role of AI in bridging the skill gaps within the banking industry across various geographical and socio-economic settings. This qualitative approach

primarily involves content analysis of secondary data, facilitating a comprehensive investigation into the implementation of AI technologies in commercial banks and its subsequent impact on workforce skill development. The study utilises wide range of documents related to adoption of AI within the banking sector. These documents include reports and policy briefs on AI implementation in banking sector from both national and international organisations. These documents will give better understanding on institutional framework guiding AI's implementation within commercial banking. The validity and reliability of these documents is premised on the rigorous peer-review processes which enhance the accuracy and relevance of the data, particularly in the implementation of AI within the banking sector (Adams 2021)

3.2 Sample and Sampling Technique

The study's sample includes relevant documents from the government agencies, international bodies, academic institutions, and industry. A purposive sampling technique was employed for inclusion of only documents that provide information relevant to AI implementation (Patton, 2015). This approach is particularly useful in qualitative research for selecting highly informative cases.

The documents selected were published within the last five years to capture recent trends and improvements in AI, reflecting how its use and expectations have evolved in commercial banking. As Ker et al. (2020) emphasize, AI is a rapidly changing field, and recent innovations and regulatory changes are essential for understanding its impact on skill gaps.

3.3. Method of Data analysis

This study employs thematic analysis as its primary method for data analysis which allows pattern identifications, examinations and the connections within the data (Adams 2021). This approach is relevant to the study's objectives as it systematically explores the implications of AI integration in the banking sector, particularly regarding employee skills development in Nigeria and the UK. The thematic analysis process begins reviewing the data from secondary sources thoroughly which includes literatures from academics, reports from industry and records of company for analysis (Sampene et al. 2022).

Additionally, the study synthesizes findings from literature reviews and case studies to identify key trends and insights (Tula et al. 2023). This synthesis is crucial for drawing meaningful conclusions about the comparative relevance of AI across Nigeria and the UK. By integrating findings from various sources, the study develops a robust view of the differences and similarities in AI skill levels among employees in the commercial banking sectors of both countries.

4. RESULT AND DISCUSSIONS

4.1. Objective One: The level AI skills of employees of commercial banks in Nigeria

The implementation of AI technology in commercial banks is crucial for economic and technological development, especially in Nigeria, where a significant skills gap among employees hinders progress. AI can engage in the task of streamlining operations, improving decision, and enhancing customer's service, but Nigeria faces challenges like inadequate technological infrastructure and unaligned educational systems (Strusani and Hounbonon 2023). These obstacles slow down AI adoption, creating a mismatch between technological advancements and workforce readiness, thereby impacting economic progress.

AI technologies provide automation opportunities to improve adeptness in credit scoring, fraud detection, and customer service. However, Nigeria's commercial banks struggle to implement these technologies due to a lack of skilled professionals in fields like data science and machine learning, alongside outdated educational curricula (Elegunde and Osagie 2020). In comparison, more advanced economies like the UK have smoother AI integration due to better infrastructure and training programs (Kshetri 2021).

Therefore, addressing Nigeria's skills gap and infrastructure limitations is critical for the successful integration of AI in its banking sector, aligning education with the needs of industry and improving accessibility to AI training (Strusani and Hounghonon 2023)

4.2. Objective Two: The level AI skills of employees of commercial banks in UK

The adoption of artificial intelligence by the commercial banking industry in U.K. has intensified the need for employees with AI skills, given the transformative role of AI in banking operations (Igbinenikaro and Adewusi 2024; Ogunode et al. 2023). As AI technologies evolve, banks must equip their workforce with necessary skills to maintain competitive advantage and comply with regulatory requirements (MallahBoustani 2022). Globally, AI adoption in financial services has accelerated, with AI being used for functions like fraud detection and customer service (Kshetri 2021). The U.K.'s position as a global financial hub increases the urgency of this shift, as the adoption of AI has broad economic and societal impacts (Ododo et al. 2024).

AI technologies are transforming banking operations through automation of routine tasks to improving interactions with customers (Egara and Mosimege 2024; Osuizugbo and Alabi 2021). However, this rapid advancement has widened the skills gap, requiring extensive upskilling and reskilling initiatives (Bassey and Owushi 2023). AI skill development is crucial for enhancing operational efficiency, security, and maintaining a competitive edge (Igbinenikaro and Adewusi 2024).

The UK government and industry bodies have introduced policies like the "AI Sector Deal" to address AI skills gaps by promoting digital literacy and technical training (Bankins and Formosa 2023). Regulatory frameworks like the Financial Conduct Authority's guidelines emphasize best practices in AI adoption, though continued adaptation is needed for further technological developments (NirKshetri 2021).

4.3. Objective Three: Compare the level AI skills of employees of commercial banks in Nigeria and UK

The disparity in artificial intelligence skills between employees in commercial banks in Nigeria and the UK significantly affects both national economies and the global banking sector. AI is central to enhancing detection of fraud, data analysis and improved customer service (Kshetri 2021). However, Nigeria and the UK display vast differences in AI integration due to varying educational infrastructure, technological resources, and economic conditions (Strusani and Hounghonon 2023).

The UK's commercial banking sector has made significant strides in AI integration, supported by strong technological infrastructure and skilled professionals while Nigerian banks face challenges such as outdated curricula and insufficient infrastructure, which limit the adoption of advanced AI systems (Igbinenikaro and Adewusi 2024; Elegunde and Osagie 2020).

Furthermore, policy responses also differ. The UK's "AI Sector Deal" promotes digital literacy and workforce development, contributing to a conducive environment for AI innovation (Goralski and Tan 2020; Mirbabaie et al. 2022). Conversely, Nigeria's efforts to update curricula and foster digital literacy face challenges such as funding limitations and lack of stakeholder coordination, slowing AI adoption (Osuizugbo and Alabi 2021; Elegunde and Osagie 2020). Despite these issues, Nigeria has made progress through technology hubs and partnerships aimed at enhancing AI skills (Strusani and Hounghonon 2023). In conclusion, the UK's proactive approach in workforce development and AI integration contrasts sharply with Nigeria's slower adoption due to infrastructural and educational challenges.

4.4. Objective Four: The influence of AI adoption on the level of skill of employees of commercial banks in Nigeria and UK

With a global shift toward AI, the need for reevaluating workforce competencies is pressing, particularly in Nigeria, where commercial banks struggle to align employee capabilities with modern AI demands, exacerbated by inadequate infrastructure, limited training access, and outdated curricula (Elegunde and Osagie 2020). In the UK, although there has been notable progress in AI integration, challenges remain in ensuring the workforce possesses necessary skills (Kshetri 2021).

AI's influence on job roles and skills presents a complex landscape. In Nigeria, new technologies necessitate advanced skills in data science and machine learning, yet a shortage of

these skills hampers AI adoption (Strusani and Hounghonon 2023). Research indicates that while AI can streamline operations, Nigeria's limited skilled workforce restricts these benefits (Bassey and Owushi 2023). Conversely, UK banks benefit from advanced infrastructure and better-trained employees, allowing for more effective AI incorporation (Biallas and O'Neill 2024).

The need for training and development programs are vital for bridging skill gaps. Nigeria faces significant barriers due to limited AI training availability and effectiveness, compounded by employee adaptation (Osuizugbo and Alabi 2021). Employee adaptation and career progression are also critical. In Nigeria, slow AI adoption creates career development challenges, leaving many employees unprepared for AI-driven roles (Elegunde and Osagie 2020). UK employees generally adapt better due to robust training and support mechanisms (Biallas and O'Neill 2024).

Overall, disparities in AI adoption between Nigeria and the UK reveal need for targeted interventions in Nigeria towards investment in infrastructure, educational updates, and comprehensive training program to support the evolving employee needs in both regions.

CONCLUSION AND RECOMMENDATIONS

The thematic analytical approach was adopted to analyze the four objectives of the study. The first objective assesses the level of AI competencies within Nigeria's commercial banking sector, emphasizing substantial obstacles and opportunities. AI holds transformative potential for banking operations, but its successful deployment hinges on improving technological infrastructure availability and the necessary skills need for operation and there is need for policies to address these challenges faced by Nigerian banks in order to boost sectoral competitiveness (Elegunde and Osagie 2020).

The second objective on AI competencies among employees in the UK commercial banking sector emphasize critical role of AI competencies among employees in shaping both the financial industry and the broader economy. While AI integration promises enhanced efficiency and customer service, it also introduces challenges such as workforce displacement, necessitating significant investment in employee training. Despite progress in current policies, continuous efforts are needed to ensure the workforce remains adept at managing and utilizing AI technologies effectively (Strusani and Hounghonon 2023).

The third objective offers a comparative analysis of AI competencies among commercial bank employees in Nigeria and the UK, revealing marked differences driven by variations in structure of education, technological accessibility and regulations. While Nigeria experiences difficulties in adopting AI, the UK showcases more usage of advanced AI and effective regulatory framework. Bridging these disparities in Nigeria will require enhancements to educational curricula, increased technological investments, and the implementation of policies tailored to each country's distinct requirements, all aimed at narrowing the skills gap and enhancing competitiveness.

The fourth objective explores the broader implications of AI integration within commercial banks, identifying significant contrasts between Nigeria and the UK. While AI has the potential to improve efficiency in operation and customer service, its success in Nigeria depends on availability of infrastructure and training opportunities. However, the UK benefits from increased access to technological infrastructure and training opportunities. Addressing these disparities will require targeted interventions that account for regional specificities, offering valuable insights into optimizing AI implementation for enhanced banking operations in both contexts.

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