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Assessing the Economic Growth Impact of Digital Innovation and Skill Acquisition: A Quantitative Analysis of the Nigeria Immigration Service

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Abstract. As e-governance becomes more imperative, governmental institutions in developing countries have come under increasing pressure to apply digital technologies to facilitate governmental services. One such organisation is the Nigeria Immigration Service (NIS), mandated to grow the country's economy through trade facilitation and accurate collection of data on imports and exports for economic analysis and strategic planning. Consequently, we examined the role of digitalisation of the NIS in the growth of Nigeria's economy and, whether digital skill acquisition by NIS staff plays a part in that process. The study was based on a cross-sectional survey of 375 immigration staff across the six geopolitical regions of Nigeria. Aided by Covariance-Based Structural Equation Modelling (CB-SEM) of data via AMOS, we found that digitalisation of the NIS directly supports economic growth (operationalised as trade and investment facilitation). Digitalisation of the NIS also leads to more training and skill-acquisition for staff. In turn, this increase in skills makes a stronger impact on trade and investment facilitation (i.e. economic growth). What the data trends suggest is that staff skill acquisition helped explain how and why digital tools lead to economic growth. The study implies that digitalisation isn't enough. To make impactful contributions to the economic, Nigerian institutions also needs to invest in her people, supporting them with the right skills to use these innovative tools effectively. This study highlights the importance of combining technology with human development to make public services convenient and smarter and, the economy, even stronger.

Keywords: Digitalisation, economic growth, E-governance, Nigeria Immigration Service, Skill acquisition, Trade and investment facilitation.

1. INTRODUCTION

Rapid diffusion of digital technologies and workforce development initiatives across the public sector have become a cornerstone of modern economies. As the Organisation for Economic Cooperation and Development [OECD] (2024) as well as United Nations Economic, Scientific and Cultural Organisation [UNESCO] and Olumodeji (2025) put it, governments worldwide recognise that digital innovation, exemplified by information systems adoption and process automation, can enhance efficiency and transparency, while skill acquisition through training equips staff to leverage new technologies. Together, these factors can drive economic growth, as digitally competent organisations reduce costs and raise productivity (Federal Ministry of Communications and Digital Economy [FMCDE], 2023; Zervas & Stiakakis, 2024). At a broader level, Gloria (2025) and Guanah and Bebenimibo's (2025) studies even associate digital innovation with poverty reduction and sustainable development in Nigeria.

Line with the trend of digital innovation, Nigeria embarked on an ambitious modernisation of its immigration services, aiming to streamline border processes and boost trade (FMCDE, 2023; Olumodeji, 2025). For example, available evidence suggests that Nigeria Immigration Service (NIS) deployed digital innovative systems such as contactless passport applications and an e-visa platform to reduce bureaucratic bottlenecks (Ariyo, 2025). This study therefore examines whether and how these digital innovations and attendant staff training efforts both translate into tangible economic benefits, specifically, in terms of improved facilitation of international trade and investmenINTThe setting of this research is the NIS, the agency responsible for border management and migration policy in Nigeria. Since its establishment in 1963, the NIS has evolved into a cornerstone of national border security, managing 84 control posts across land, air, and sea entry points (International Centre for Migration Policy Development [ICMPD], 2025). The agency (NIS) also supports regional integration by facilitating ECOWAS free movement protocols. However, Nigeria's vast borders and evolving security challenges (such as terrorism and cybercrime) have strained its capacity, creating an urgent need for innovation and reform (ICMPD, 2025).

To address these challenges, the NIS launched major transformation initiatives (e.g., the MoNIS Project) that introduced automated systems and e-learning platforms for personnel (ICMPD, 2025). At the same time, the Nigerian government is pursuing broader economic reforms that rest on expanding and attracting trade and investment, including participation in the African Continental Free Trade Area [AfCFTA] (Onanuga, 2025). In this context, efficient and secure border procedures, facilitated by modern technology and skilled personnel, may be critical to economic growth. For instance, global evidence shows that trade facilitation reforms (such as streamlined customs and immigration processes) have significantly reduced trade costs in recent years (OECD, 2025). Thus, understanding the interplay between digital innovation, staff training, and trade and investment facilitation in the context of the NIS is both timely and needful.

1.1. Background, Context and Rationale

Effective border management in the age of digital technology depends on the dual pillars of technology and

human capital (Olumodeji, 2025). In Nigeria, high-ranking public officials have explicitly endorsed digital solutions as panacea for improved immigration operations. In particular, the Comptroller General of NIS recently posited that introducing technology-driven processes, such as a Contactless Passport Application System and a fully online e-visa channel will improve the ease of doing business in Nigeria by greatly minimising administrative delays and limiting chances for corrupt activities (Ariyo, 2025). Similarly, the Interior Minister observed that the rollout of a centralised document-verification system and an online visa platform were aimed to speed up entry procedures into the country, especially for investors (Punch, 2025). These and other examples reflect a broader and high-level recognition that digital innovation (i.e. the adoption of new information systems and automation tools) in immigration can enhance service efficiency, integrity, and user experience. Available evidence shows that Nigeria's Advanced Passenger Information System (APIS) and biometric e-gates at major airports have already improved passenger processing and security screening (AriseNews, 2024).

Meanwhile, the benefits of technology rely on people's ability to use it. Accordingly, the NIS has invested in training programmes to develop officer skills. The recent MoNIS initiative established an e-learning platform offering dozens of courses (on topics from migration management to counter-terrorism), explicitly designed to equip NIS officers with enhanced skills (ICMPD, 2025). In general, digital competencies: ranging from basic computer literacy to advanced system operation, are recognised as essential for organisational performance. Studies observe that employees with strong digital skills help organisations adapt to innovation, cut costs, and boost productivity (Yauri, 2021; Zervas & Stiakakis, 2024). Similarly, studies show that continuous training ensures that civil servants can implement and optimise new technologies (OECD, 2024; UNESCO & Olumodeji, 2025). Thus, skill acquisition (measured in this study by training hours and completed programmes) may be a key mediating factor, enabling NIS workforce to translate digital tools into effective outcomes.

The ultimate goal of these reforms is to facilitate economic activity. International trade and investment facilitation, the dependent variable in this study, refers to NIS' contribution to the growth of Nigeria's economy by reducing barriers and delays at the border so that goods, services, and capital can flow more freely. This study proposes that efficient immigration processes (alongside Customs and other agencies) can help businesses import inputs and export products without undue delay, while transparent procedures foster confidence for foreign investors. As it is, global evidence suggests that trade facilitation measures significantly lower costs of trade: recent OECD data indicate reforms have cut trade costs by about 3-7% since 2022, with even larger gains projected over the long term (OECD, 2025). In the Nigerian context, collaborative efforts between Customs and Immigration have been explicitly tied to boosting trade and investment (Okpanachi, 2025).

Nevertheless, despite the clear policy push toward digitalisation and training in the Nigerian immigration sector (Olumodeji, 2025), a critical gap exists in understanding the economic impact of these efforts. Specifically, it is not yet known to what extent NIS's new systems and automation actually translate into measurable improvements in trade and investment flows (Isiyaku, Mohammed, Mohammed & Dangani, 2022). Most reporting on NIS reforms focuses on procedural benefits (e.g., faster passport issuance or reduced corruption) without quantifying downstream economic effects (Ariyo, 2025). Likewise, while skill-enhancement programmes are being implemented, the role of training in realising economic outcomes (beyond internal efficiency) has not been adequately examined (Bature & Bashiru, 2025; Momoh, Epebinu & Chidiebere, 2025).

In essence, notwithstanding a growing body of work on digital economies and workforce training in Nigeria, several gaps remain. Few studies have examined the specific context of the Nigeria Immigration Service, its adoption of digital tools, and the impact on trade facilitation. Empirical analyses linking NIS reforms (like e-Visas) to cross-border trade and investment outcomes are scarce. Additionally, although the importance of public-sector capacity building is well noted in extant literature, the combined influence of digital innovation and officer training on the NIS's performance is under-researched. In particular, the mediating role of skill development in this nexus has not been empirically established.

This lack of evidence motivates the present study. We therefore posit that digital innovation (independent variable) will have a positive effect on trade and investment facilitation (dependent variable), but that this effect will operate substantially through skill acquisition (mediator). In other words, merely installing new systems at NIS may be insufficient; her officers must be trained to use them effectively for the benefits to accrue. By focusing on these relationships in a structural model, this research intends to clarify how investment in technology and human capital combine to support Nigeria's economic goals.

1.2. Objectives

The specific objectives of this study are to:

- Measure the level of digital innovation in the NIS;
- Assess skill acquisition among NIS officers;
- Analyse the impact of digital innovation on trade and investment facilitation (economic growth), and;
- Examine the mediating role of skill acquisition in the impact of the level of digital innovation in the NIS on trade and investment facilitation (economic growth).

1.3. Significance of the Study

This study has important theoretical and practical significance. Academically, it contributes to the literature on public sector innovation by jointly examining technological and human factors in a quantifiable model. Few prior studies have investigated how digital transformation efforts in immigration or border agencies impact macroeconomic objectives like trade and investment, especially in developing countries. By introducing skill acquisition as a mediating factor, the research also adds nuance to our understanding of how training amplifies the returns to technology.

From a policy and practice perspective, the findings will be directly relevant to Nigerian government planners and NIS leadership. Evidence on the economic benefits of digital innovations can justify continued investment in IT infrastructure (for instance, the demonstrated effect of an e-visa system on trade could support its expansion). Likewise, quantifying the payoff from training will help prioritise capacity-building programmes. In concrete terms, the study will inform decisions about scaling up automation, allocating resources for officer training, and coordinating with trade partners.

1.4. Organisation of the Study

The remaining parts of this study is as follows. Section 2 reviews relevant literature on digital innovation, skill development, and trade facilitation, highlighting the gap in literature which sets foundation for the study. Section 3 describes the research methodology, while Section 4 presents the empirical results of the structural model, testing the hypothesised relationships among digital innovation, skill acquisition, and trade facilitation. Section 4 also discusses these findings in the context of theory and prior studies, highlighting implications for policy. Finally, Section 5 concludes with a summary of contributions, policy recommendations for the NIS and government, and suggestions for further research.

2. LITERATURE REVIEW

Technological advancement is increasingly recognised as a driver of economic development worldwide (Du & Wang, 2025; Ebua, 2023; Hardi, Ray, Attari, Ali & Idroes, 2024; Xue, Cai, Liu, Di, & Hu, 2025). In Nigeria, for example, the ICT sector contributed roughly 20% to GDP in Q2 2024, reflecting a growing digital economy (International Trade Administration, 2024). The federal government's National Digital Economy Policy (2020–2030) builds on this by prioritising areas like Digital Literacy and Skills to leverage technology for growth (World Economic Forum [WEF], 2024). Within this context, the Nigeria Immigration Service (NIS) has embarked on modernisation efforts, such as implementing online visa and border-control systems to streamline migration processes and support trade facilitation (Odita, 2025; Travel & Tour World [TTW], 2025). This review examines existing scholarship on public-sector digital innovation and capacity building, and how these themes relate to economic outcomes in the immigration/trade context.

2.1. Review of Key Concepts

2.1.1. Digital Innovation in the Public Sector

Digital innovation in the public sector means using new technologies, like computers, mobile apps, online services, and automation, to help government offices work better and serve people faster. It involves changing old, slow ways of doing things (such as paper-based records and in-person-only services) to easier, quicker digital methods. This transformation helps reduce long queues, improves transparency, saves time and resources, and makes it easier for citizens to access important government services from anywhere (Al Rashdi, 2025; Balaji, 2025). Research shows that by adopting innovative technologies, public agencies can become more responsive, efficient, and citizen-friendly (Kusnadi, 2025; OECD, 2024). Practical examples like Nigeria's MoNIS project highlight how digital platforms streamline immigration services, reduce corruption, and improve service delivery (ICMPD, 2025; FMCDE, 2019). Furthermore, global insights emphasise that digital transformation in governance is essential for driving inclusive growth, modernising public administration, and supporting economic development in emerging economies (WEF, 2024).

Consequently, governments worldwide are leveraging digital technologies to improve service delivery and transparency (Al Rashdi, 2025; Ogah & Nwokolo, 2022; Kusnadi, 2025; Paselle, Indarto & Rande, 2025). In Nigeria, initiatives like the Government Service Portal and online payment platforms (e.g. Remita) exemplify this shift towards e-government (Ajiteru, Sulaiman & Abalaka, 2025; Ogah & Nwokolo, 2022). Public agencies are introducing online systems to reduce paperwork and delays (Balaji, 2025; Balewa *et al.*, 2025). For instance, in 2025 the NIS launched a fully digital e-Visa application platform, which replaces manual visa-on-arrival processes and allows travelers to apply and receive approvals entirely online (Ariyo, 2025; Odita, 2025). Nigerian authorities portray this wave of digitalisation (i.e. the e-visa system) as more than a modernisation effort, framing it instead as a transformative shift in governance, trade facilitation, and broader economic development (Ariyo, 2025; Odita, 2025). These examples illustrate how public-sector innovation can modernise procedures, increase efficiency, and ultimately enhance the country's capacity to facilitate trade and investment.

2.1.2. Public Sector Digital Skill Acquisition and Capacity Development

Public sector digital skill acquisition and capacity development means teaching government workers how to use computers, online systems, and modern technology to do their jobs better and faster. It also involves giving them the training and tools they need to keep up with new technologies, so they can provide better services to the public, reduce delays, and work more efficiently in a digital world (Oladimeji, Abdulkareem, & Adejumo, 2024; Adewumi & Abasilim, 2024; ICMPD, 2025). International best practices show that improving digital skills among public sector staff is essential for successful digital transformation, as it directly boosts productivity, service quality, and citizen satisfaction (OECD, 2024; Kitthiwichayakul, Hongkham, & Kenaphoom, 2023). Furthermore, studies highlight that continuous training and development of digital competencies not only enhance employee performance but also support broader organisational and economic goals (Lopes, Sargento, & Farto, 2023; Stofkova *et al.*, 2022).

Recognising the centrality of human capital, Nigerian policies emphasise training and capacity building across sectors (Adewumi & Abasilim, 2024; Federal Ministry of Communications and Digital Economy [FMCDE], 2019). The national strategy explicitly lists digital literacy and skills as an economic pillar (Awoleye, Aworinde & Oyebisi, 2020; FMCDE, 2019). Major programmes have been launched to develop technical talent: for example, the Federal Government's *3 Million Technical Talent (3MTT)* initiative aims to train 3 million citizens in ICT and related fields by 2027 (WEF, 2024). Likewise, international partners are helping upskill civil servants: in early 2025 UNESCO trained 80 Nigerian public-sector employees on AI and digital governance, highlighting the policy stance that digital competence is considered an essential qualification for public sector personnel (UNESCO & Olumodeji, 2025). Private-sector partnerships also contribute to capacity building. US tech firms like Microsoft, Google, and Cisco have launched national programmes to teach millions of Nigerians software development, networking, and data analysis skills (ITA, 2024). Altogether, these efforts underscore that advanced digital competencies are viewed as essential for building competitive economies (IOM, 2024; Kitthiwichayakul, Hongkham & Kenaphoom, 2023; Stofkova, Poliakova, Stofkova, Malega, Krejnus, Binasova, & Daneshjo, 2022; UNESCO & Olumodeji, 2025).

2.1.3. Economic Growth

Economic growth is a situation where a country's economy becomes bigger and stronger over time, usually seen in things like more jobs, higher incomes, and increased production of goods and services (Ajiteru, Sulaiman, & Abalaka, 2025). According to studies, economic growth implies making it easier for businesses and countries to buy and sell goods across borders (international trade) and by attracting money from investors to build businesses, factories, or services (Hardi, Ray, Attari, Ali, & Idroes, 2024; OECD, 2025). When governments reduce paperwork, improve digital systems, and simplify customs processes, it becomes faster and cheaper for companies to trade and invest, which helps the entire economy grow (Gloria, 2025; Guanah & Bebenimibo, 2025; WEF, 2024; Obeng-Amponsah & Owusu, 2025). Moreover, technological innovation plays a vital role in facilitating development and addressing structural barriers in emerging economies like Nigeria, thereby supporting sustainable economic transformation (Ebua, 2023; Xue, Cai, Liu, Di, & Hu, 2025). Digital skills and capacity-building are equally essential, as they empower workers and institutions to effectively leverage technology for economic development (Zervas & Stiakakis, 2024).

Meanwhile, economic growth, measured by increases in GDP and trade volumes is widely theorised to be linked to innovation and skill development. Scholars observe that technological advancement is a key determinant shaping economic growth and development worldwide, including in Nigeria (Echegu, 2024). In Nigeria, the strong performance of the ICT industry illustrates this connection (ITA, 2024). Researchers have also found that digitalisation tends to boost innovation only in countries with adequate human capital: for instance, *Osei (2024)* shows a positive interaction between digital access and skill levels in promoting innovation. From a policy perspective, Nigerian officials emphasise that improving trade facilitation through digital customs and e-commerce processes can drive economic growth by attracting investment (Oduwole, 2025). An assessment conducted by the Nigerian Customs Service (NCS) suggests that digitalisation represents a fundamental shift in governance that promotes trade facilitation, and broader economic transformation (Omoniyi, 2025).

2.2. Theoretical Framework

To provide an analytical foundation for understanding how digital innovation impacts economic growth (trade and investment facilitation) through digital skill training and capacity-building, this study adopts the Technological Innovation System (TIS) framework and Human Capital Theory (HCT).

2.2.1. Technological Innovation System (TIS) Framework

The Technological Innovation System (TIS) framework was first conceptualised by Carlsson and Stankiewicz (1991) to analyse how networks of actors, institutions, and supportive infrastructures foster the development, diffusion, and utilisation of specific technologies within defined sectors or regions. TIS assumes that innovation is not merely a technological event but a systemic process shaped by interactions among firms, governments, research institutions, and users, all operating within enabling or constraining institutional frameworks. It

highlights functions such as knowledge development, market formation, resource mobilisation, and legitimacy building as key drivers of innovation success.

Despite its analytical value, TIS has been criticised for being technology-centric, often overlooking socio-political dynamics and non-technological factors that can hinder innovation adoption (Bergek, Jacobsson, Carlsson, Lindmark, & Rickne, 2008). However, TIS has been successfully applied in management research, particularly in analysing sectoral innovation (e.g., ICT adoption in public services) and identifying systemic barriers to technological adoption (Ojo & Hurlbert, 2025).

In this study, TIS provides a robust lens to examine how institutional capacity, policy support, and public-private collaborations influence the success of digital innovations within the Nigeria Immigration Service (NIS). For instance, deploying an automated visa system requires not only the technology but also supportive legal frameworks, data governance standards, and organisational readiness. By applying TIS, this study captures these systemic interactions to explain how digital innovation in the NIS can drive trade and investment facilitation, ultimately impacting economic growth.

2.2.2. Human Capital Theory (HCT)

The Human Capital Theory (HCT), pioneered by Theodore Schultz (1961) and further developed by Gary Becker (1964), posits that investments in education, training, and skills enhance the productive capacity of individuals, thereby contributing to economic growth. HCT assumes that human capital, embodied in workers' knowledge, competencies, and health, is a critical driver of organisational and national productivity. The theory underlines that the returns on technological investments are contingent upon the workforce's ability to effectively utilise and adapt to new technologies.

However, HCT has faced criticisms for its reductionist view of workers as economic assets, neglecting social, cultural, and structural factors that influence labour productivity (Fine, 2001). Despite these limitations, HCT remains widely applied in management and organisational research, especially in evaluating the impact of employee training on performance, innovation adoption, and economic development (Bagdadli *et al.*, 2025; Latov & Tikhonova, 2021).

For this study, HCT is particularly relevant in explaining the mediating role of digital skill training and capacity-building in the relationship between digital innovation and economic growth. In the NIS context, equipping officers with the necessary digital competencies (e.g., proficiency in automated visa platforms) is essential to fully realise the benefits of technological innovations. Empirical studies consistently show that without adequate human capital, technological advancements fail to translate into tangible productivity gains (Zervas & Stiakakis, 2024). Therefore, this study adopts HCT to substantiate the hypothesis that skill acquisition and capacity-building will mediate the effect of digital innovation on trade and investment facilitation, thereby influencing Nigeria's economic growth trajectory.

2.3. Empirical Review

This literature review critically examines existing scholarly and empirical studies on the interplay between digital innovation, skill acquisition, and economic growth, with a particular focus on how these interrelationships influence trade and investment facilitation in the context of Nigeria's public sector.

2.3.1. The Role of Digital Innovation in Trade and Investment Facilitation (Economic Growth)

Digital innovation plays a critical role in enhancing trade efficiency and promoting economic growth (Echegu, 2024; Gloria, 2025; Hardi, Ray, Attari, Ali & Idroes, 2024; Oduwole, 2025; Ogah & Nwokolo, 2022). Empirical studies have shown that the adoption of digital technologies reduces transaction costs, improves logistics, and fosters greater integration into global value chains (Du & Wang, 2025; Cirillo, Fanti, Mina, & Ricci, 2023; Sirait, Rosalina, & Sari, 2023). For instance, in analysing China's experience, Jiao and Sun (2021) found that digital economic development significantly improves trade performance and contributes to sustainable growth by enhancing transparency and reducing administrative barriers.

Similarly, Jiao and Sun (2021), Luo *et al.* (2023) and Kusnadi (2025) demonstrated that digitalisation not only boosts green innovation but also facilitates broader economic activities through improved trade systems. Kastelli, Dimas, Stamopoulos and Tsakanikas (2024) further emphasised the importance of digital capacity in enhancing innovation performance, noting that firms with higher absorptive capacities are better positioned to leverage digital tools for trade facilitation. In the Nigerian context, studies observed that digital platforms, such as e-customs and single-window portals, streamline import-export processes, thereby enhancing Nigeria's competitiveness in international trade (Okpanachi, 2025; Omoniyi, 2025). These findings underscore that digital innovation is a key enabler of trade facilitation and economic growth.

2.3.2. Skill Acquisition and Capacity Development as Predictor of Trade and Investment Facilitation

The effective implementation of digital trade facilitation measures rests on the availability of skilled human capital. Goulart, Liboni, and Cezarino (2022) highlighted that balancing digital and soft skills is essential for public sector transformation, as digital competencies enable workers to manage new technologies and streamline

trade processes. This is corroborated by Grigorescu, Pelinescu, Ion and Dutcas (2021), who found that human capital development significantly influences the performance of digital economy initiatives in Central and Eastern Europe, including trade facilitation programmes.

In Nigeria, Muraina and Emek (2023) argue that the acquisition of digital-technological-based skills is fundamental to achieving sustainable economic growth and improving trade facilitation outcomes. Their study revealed that capacity development initiatives targeting public sector employees have led to noticeable improvements in efficiency and service delivery. Therefore, skill acquisition serves as a critical link between digital innovation and the realisation of trade and investment benefits, particularly in developing economies.

2.3.3. The Relationship Between Digital Innovation and Skill Acquisition in the NIS

According to OECD (2024), digital technologies significantly impact economies, labour markets, and societies, with the potential to revolutionise government services. To explore this shift, the study employs desk research and expert interviews across 10 OECD countries (Australia, Canada, Denmark, France, Germany, Italy, Korea, Slovenia, Spain, and the UK). It highlights the importance of continuous skills development for civil servants to support digital transformation. OECD (2024) concludes that, despite the rarity of skills assessments, governments must proactively invest in skills, training, and education to fully leverage the benefits of digital transformation and address its societal and economic challenges.

The interdependence between digital innovation and skill acquisition is well established within the National Innovation System [NIS] (Ariyo, 2025; Isiyaku *et al.*, 2022). Ciarli, Kenney, Massini, and Piscitello (2021) emphasised that the emergence of new digital technologies fundamentally reshapes skill requirements, necessitating continuous upskilling and reskilling of the workforce. This dynamic relationship is also reflected in the work of Cirillo, Fanti, Mina and Ricci (2023), who demonstrated that investments in digital technologies are intrinsically linked to organisational skills development and work reorganisation.

In Nigeria, such relationships are evident in public sector agencies like the NIS, where the introduction of digital platforms has been accompanied by targeted training programmes to build staff capacity (Muraina & Emek, 2023). Kastelli *et al.* (2024) and Kitthiwichayakul *et al.* (2023) further observed that digital capacity building enhances the absorptive capacity of institutions, enabling them to more effectively leverage digital innovations for improved service delivery. These insights confirm that digital innovation drives the need for skill acquisition, while a skilled workforce, in turn, facilitates the successful adoption and utilisation of new technologies within the NIS framework.

2.3.4. The Mediating Role of Skill Acquisition in the Relationship Between Digital Innovation and Economic Growth

The mediating role of skill acquisition in translating digital innovation into economic growth is widely recognised. Zervas and Stiakakis (2024) found that digital skills acquisition significantly influences the effectiveness of digital transformation initiatives, acting as a key driver of sustainable economic development. Their study demonstrated that without adequate human capital, the benefits of digital technologies on productivity and economic growth remain limited.

Meanwhile, Goulart *et al.* (2022) further highlighted that higher education institutions play a crucial role in equipping the workforce with the necessary skills to harness digital innovations for economic gains. Similarly, Luo *et al.* (2023) confirmed that digital innovation's impact on green economic growth is largely mediated by the skill levels of the workforce. Muraina and Emek (2023) provide supporting evidence from Nigeria, showing that skill acquisition initiatives significantly enhance the impact of digital technologies on public sector performance and, by extension, economic growth. These findings underscore that skill acquisition is not merely an ancillary activity but a fundamental mediator in the relationship between digital innovation and economic growth.

Based on the literature review and identified gaps, the study poses the following hypotheses:

H_1: The level of digital innovation in the Nigeria Immigration Service (NIS) significantly directly affects trade and investment facilitation (economic growth).

H_2: Skill acquisition/capacity development among NIS officers significantly affects trade and investment facilitation (economic growth).

H_3: Digital innovation in the NIS significantly impacts skill acquisition and capacity development.

H_4: Skill acquisition mediates the relationship between the level of digital innovation in the NIS and trade and investment facilitation (economic growth).

3. METHODOLOGY

This section describes the overall methodological approach used to investigate the research questions. This includes, the study's philosophy, setting, population and sampling strategy, and the structure of the data collection instrument. Validity and reliability procedures are explained, followed by a description of the data analysis techniques and the ethical measures adopted. Each methodological choice is justified with reference to extant research and best practices.

3.1. Research Philosophy

This study is based on a positivist research philosophy which assumes that reality is objective, observable, quantifiable and testable (Mwita, 2025). Under the positivist paradigm, the relationships between digital innovation, skill acquisition, and economic outcomes are treated as real-world constructs that can be empirically tested. A deductive logic or theoretical propositions guide the analysis. In this instance, the proposition that digital innovation and training/capacity development affect trade facilitation is specified a priori and then evaluated against the survey data leading to a deduced (generalisable) standpoint.

3.2. Research Design

A quantitative, survey-based design was employed. Cross-sectional data were collected via a structured questionnaire administered face-to-face. This design is appropriate for examining relationships among variables at a single point in time and for input into structural equation modelling (Huang *et al.*, 2025). The standardised cross-sectional survey of Nigeria Imiigration Service (NIS) generated numerical data on each construct (e.g. extent of digital systems, training activities, trade facilitation measures), enabling rigorous statistical analysis. Such survey research is common in organisational studies as it allows collection of data from many respondents relatively efficiently (Huang *et al.*, 2025). In this project, a closed-ended paper questionnaire was chosen to ensure consistency of measurement across respondents, facilitating reliable input into CB-SEM analysis.

3.3. Setting

Data were gathered from six Nigeria Immigration Service (NIS) offices, one in each of Nigeria's geopolitical zones. Specifically, the sites were Lagos (South West), Federal Capital Territory (North Central), Borno (North East), Kano (North West), Anambra (South East), and Rivers (South South). These offices were selected to capture geographic and operational diversity in border activity and administrative practice. For example, Lagos and Kano are major international gateways, while others like FCT serve administrative functions. By covering all regions, the study ensures that various levels of resource availability and trade volume are represented. The target population consisted of all NIS personnel in these offices (both border-control officers and support staff).

3.4. Population and Sampling Technique

The study population is the set of NIS officers and employees working at the six selected offices. A multi-stage sampling strategy was used. In the first stage, one office per geopolitical zone was purposively selected (as described above) to ensure national coverage. In the second stage, individual participants were sampled from within each chosen office. Specifically, based on systematic sampling techniques, available participants were visited in their offices for survey administration. In effect, the offices acted as clusters (primary sampling units) and respondents as secondary units. This reflects a multistage cluster sampling design (Makwana, Engineer, Dabhi & Chudasama, 2023). First sampling large clusters (offices), then sampling individuals within them. Such an approach enhances feasibility (concentrating fieldwork in a few locations) while preserving external validity through probabilistic selection of respondents.

Guidance from SEM methodology dictated the target sample size. Sathyanarayana, Mohanasundaram, Pushpa and Harsha's (2024) study suggest that covariance-based SEM requires relatively large samples, typically at least 200 observations, for stable parameter estimates. Following this advice, a minimum overall sample of 200 participants was planned for the study. In practice, this meant aiming for on the order of 40 at least respondents per office. This sample-size range is consistent with Hair, Black, Babin and Anderson's (2018, as cited by Memon, Ting, Cheah, Thurasamy, Chuah & Cham, 2020) recommendations (e.g. 5–20 cases per questionnaire item) and ensures the model is not underpowered (Sathyanarayana *et al.*, 2024).

3.5. Instrumentation and Questionnaire Structure

The primary instrument for data collection in this study was a structured, paper-based questionnaire administered face-to-face to respondents at their respective duty posts. The questionnaire was designed to capture relevant data aligned with the study's conceptual model and consisted of four main sections. Each section was crafted to reflect validated constructs from prior research while remaining contextually relevant to the operations of the NIS.

Section 1 gathered demographic and background information about the respondents, including age, gender, department or unit, years of service, educational qualification, and office location. These variables serve as essential control factors for profiling the study sample and ensuring variability across individual characteristics (Ziegenfuss *et al.*, 2021). Such data also provide a foundation for subgroup analysis where necessary.

Section 2 focused on digital innovation within the NIS, measuring the extent of adoption and use of digital technologies and automated processes. Items in this section assessed the presence and functionality of electronic systems such as the e-visa platform, automated entry gates, online application systems, and digital document processing. Respondents were also asked to evaluate the quality of the ICT infrastructure and the frequency with which they engaged with digital tools. These items were developed from previous studies on public sector digital transformation (e.g., Yauri, 2021; Isiyaku, Mohammed, Mohammed & Dangani, 2022; Olota, Balogun &

Emmanuel, 2024), ensuring conceptual alignment with key dimensions of technological innovation.

Section 3 explored the dimension of skill acquisition and capacity development. This section included items related to the number of formal training programmes attended by officers, estimated training hours completed, frequency of training opportunities provided by the organisation, and the perceived relevance of such training to daily job functions. Officers were also asked to self-assess their competence in using digital tools after training. The items drew on instruments developed in recent studies examining workforce development in paramilitary and public-sector contexts (e.g., IOM Nigeria, 2024; Momoh *et al.*, 2025), with a particular focus on training intensity, application, and post-training confidence.

Section 4 operationalised the dependent variable (i.e. facilitation of international trade and investment) as a proxy for economic growth. The items in this section assessed NIS officers' perceptions of their agency's efficiency in enabling cross-border movement. Specific indicators included average processing time for immigration transactions, volume of work handled (such as visa and passport issuance), capacity to support international business travel, and overall disposition towards investor-friendly immigration procedures. This measurement approach aligns with the perspective that streamlined border services contribute significantly to economic performance by promoting trade and investment (UNCTAD, 2017).

All items in Sections 2 through 4 of the research instrument were measured using five-point Likert-type scales. This scale structure allows for the generation of ordinal data suitable for parametric testing in structural equation modelling.

3.6. Validity and Reliability

Several procedures were used to establish the instrument's validity and reliability. First, content validity was ensured through expert review. Senior academics and NIS officials examined the questionnaire to confirm that items adequately covered the constructs (digital innovation, training/capacity development, trade facilitation). Feedback from these experts led to revisions in wording and item selection. This process produced 3-item per construct. Second, an Exploratory Factor analysis (EFA) was conducted. The EFA were conducted to identify any unclear questions or anomalies, and the instrument was refined accordingly.

For construct validity, statistical factor analyses (Hair, Black, Babin & Anderson, 2010; as cited by Nikou, Perifanou & Economides, 2024), via exploratory factor analysis (EFA) was performed to explore the underlying structure of the instrument and ensure items loaded on the expected constructs. Then confirmatory factor analysis (CFA) was also conducted on the full sample using Analysis of a Moment Structures (AMOS) to verify that each latent construct (digital innovation, skill acquisition, trade facilitation) was measured by its items as hypothesised. This two-step (EFA→CFA) approach is standard practice for validating multi-item scales in CB-SEM research (Hair *et al.*, 2010; as cited by Nikou *et al.*, 2024).

Reliability was assessed via internal consistency. Cronbach's alpha was calculated for each multi-item scale. As Amirridin, Nasution and Supahar's (2021) study suggests, Cronbach's alpha provides a measure of how closely related the set of items are as a group. In this study, we followed common guidelines that an alpha coefficient of 0.70 or higher indicates acceptable reliability (Schaufeli, De Witte, Hakanen, Kaltiainen & Kok, 2023). If any scale falls below this cutoff, items may be reviewed or revised. In addition, composite reliability and average variance extracted (AVE) were examined in the CFA to support convergent validity of each construct. In summary, expert review and factor-analytic validation (EFA/CFA) together ensured the research instrument measured the intended variables reliably and validly.

3.7. Method of Data Analysis

Data analysis was conducted using covariance-based structural equation modeling (CB-SEM) with AMOS software. CB-SEM is appropriate in the study because it rigorously tests the hypothesised relationships among multiple latent constructs (digital innovation, skill acquisition, and economic facilitation) and can evaluate mediating effects (Nikou *et al.*, 2024). The CB-SEM procedure involved several stages. First, the measurement model was specified by defining the latent variables and their indicator items as guided by theory. Second, the model was identified and estimated using maximum likelihood estimation; assumptions of multivariate normality and linearity were assessed before analysis. Next, model fit was evaluated using multiple goodness-of-fit indices (see section 4). Finally, path coefficients were examined to test the hypotheses. In particular, the model includes direct paths from digital innovation to trade facilitation and from skill acquisition to trade facilitation, as well as an indirect (mediation) path where skill acquisition mediates the innovation–facilitation relationship. The significance of these paths were tested within the SEM framework. All steps followed established guidelines for SEM analysis (see Kline, 2015), ensuring a rigorous test of the proposed structural model.

3.8. Ethical Considerations

The study adhered to standard ethical principles for human-subjects research. Participation was entirely voluntary, and no officer was coerced or penalised for non-participation. Informed consent was obtained from each participant: the purpose of the study, its voluntary nature, and how data would be used were fully explained before administering the questionnaire. To protect privacy, no names or personal identifiers were collected; each

questionnaire was coded so that responses remained anonymous. Data were collected at each of the six designated locations by 18 trained research assistants (3 per location). Data were stored securely, and only aggregate results are reported to maintain confidentiality. In line with ethical norms, respondents were assured of confidentiality and reminded they could skip questions or withdraw at any time. Finally, formal approval for the research was obtained from the relevant internal and external authorities before fieldwork commenced. All procedures complied with international ethical standards, including the principles of voluntary participation, informed consent, anonymity, and confidentiality.

4. DATA ANALYSIS/RESULTS PRESENTATION SECTION

This section presents the results of a quantitative analysis aimed at assessing the economic growth impact of digital innovation and skill acquisition within the Nigeria Immigration Service (NIS). Data were collected from six NIS offices across Nigeria's geopolitical zones over a three-month period, from January to March 2025.

4.1. Descriptive Statistics and Demographic Distribution of the Sample

The sample consisted of 375 NIS officers from six geopolitical zones, representing a diverse cross-section of the NIS workforce. The age distribution revealed that the majority of respondents were in the 48-57 years range (38.9%), followed by the 58+ years group (31.2%). Only 1.6% of respondents were aged 18-22 years. This age distribution suggests that the sample was skewed toward older, more experienced officers, which could influence perceptions of digital innovation and skill acquisition. In terms of gender, 68.3% of respondents were male, and 31.7% were female, reflecting the broader gender distribution within the public sector in Nigeria. The highest proportion of respondents came from the Passport & Other Travel Documents Directorate (28.8%), followed by Planning, Research & Statistics (23.2%), highlighting diverse exposure to digital systems across various operational areas. Regarding years of service, 38.9% of respondents had 7-10 years of service, and 39.7% had 10+ years, indicating a well-experienced workforce. The educational distribution showed that 44.8% of participants held an undergraduate degree, and 32.5% held postgraduate qualifications, suggesting a highly educated sample, which is crucial for understanding the impact of skill acquisition and digital innovation.

Table 1: Demographic Characteristics of Respondents.

Variable	Category	Frequency	Percent
Age Group	18-27 years	6	1.6%
	28-37 years	106	28.3%
	48-57 years	146	38.9%
	58+ years	117	31.2%
Gender	Male	256	68.3%
	Female	119	31.7%
Directorate	HRM/Administration	37	9.9%
	Finance & Accounts	56	14.9%
	Planning/Research	87	23.2%
	Passport & Travel Docs	108	28.8%
	Investigation/Compliance	59	15.7%
	Border Management	15	4.0%
Educational Qualification	Secondary	25	6.7%
	Diploma	60	16.0%
	Undergraduate	168	44.8%
	Postgraduate	122	32.5%

4.2. Psychometric Validation of the Measures

4.2.1. Reliability Analysis

The internal consistency measurement of the constructs indicates that the measures for digital innovation, skill acquisition and economic growth yielded Cronbach's Alpha values of 0.704, 0.741 and 0.708 respectively. These Cronbach's Alpha values exceed the acceptable threshold of 0.70, thereby indicating a satisfactory level of internal consistency and scale reliability (Schaufeli *et al.*, 2023). This confirms that the items within each scale were consistent measures of each of the variables.

4.2.2. Exploratory Factor Analysis (EFA)

Factor analysis was conducted to test the validity of the constructs. The Kaiser-Meyer-Olkin (KMO) measure and Bartlett's Test of Sphericity were used to determine the suitability of the data for factor analysis. The results indicate that Digital innovation scale: KMO = 0.600, $p < 0.001$, explaining 63.7% of the variance; Skill acquisition scale: KMO = 0.609, $p < 0.001$, explaining 66.2% of the variance, and; Economic Growth: KMO = 0.523, $p < 0.001$, explaining 64.5% of the variance. Additionally, the results of the EFA (see Tables 2a, 2b & 2c) confirm that the data fit the factor analysis model and that the items on each scale are related to a single underlying factor.

Table 2a: Factor Analysis - Digital Innovation.

Component	Eigenvalue	% of Variance	Cumulative %	Factor Loadings
1	1.911	63.7%	63.7%	*D1: 0.877, D2: 0.640, D5: 0.856
2	0.755	25.2%	88.9%	-
3	0.334	11.1%	100%	-

Note: *see appendix for the item wordings.

Table 2b: Factor Analysis - Skill Acquisition.

Component	Eigenvalue	% of Variance	Cumulative %	Factor Loadings
1	1.985	66.2%	66.2%	*S1: 0.876, S4: 0.658, S5: 0.885
2	0.725	24.2%	90.3%	-
3	0.290	9.7%	100%	-

Note: *see appendix for the item wordings.

Table 2c: Factor Analysis - Economic Growth.

Component	Eigenvalue	% of Variance	Cumulative %	Factor Loadings
1	1.935	64.5%	64.5%	*E2: 0.567, E4: 0.869, E6: 0.926
2	0.837	27.9%	92.4%	-
3	0.228	7.6%	100%	-

Note: *see appendix for the item wordings

4.2.3. Confirmatory Factor Analysis (CFA)

The results of the Confirmatory Factor Analysis (CFA) in Table 3 provided evidence that the measurement model demonstrated an acceptable to good fit with the data (Hair *et al.*, 2010; as cited by Nikou *et al.*, 2024). The Chi-square statistic was significant, $\chi^2 = 67.899$, $p = 0.000$; however, the normed chi-square (CMIN/DF) value of 2.829 indicated a good model fit, as values below 3 are generally considered acceptable. The Root Mean Square Error of Approximation (RMSEA) was 0.070, with a p-close value of 0.045, further suggesting an acceptable fit within the conventional threshold of ≤ 0.08. Additionally, the Comparative Fit Index (CFI) value of 0.958 signified a good fit, exceeding the minimum recommended value of 0.90. Supporting indices such as the Goodness-of-Fit Index (GFI = 0.962) and the Adjusted Goodness-of-Fit Index (AGFI = 0.928) also corroborated the conclusion that the model adequately captured the underlying data structure. Collectively, these fit indices confirmed that the specified measurement model was reliable and valid for further structural analysis.

Table 3: Model Fit Indices for the Confirmatory Factor Analysis (CFA).

Fit Index	Value	Threshold Criteria	*Interpretation
Chi-square (χ^2)	67.899	$p < .05$ (significant)	Significant, acceptable with large samples
CMIN/DF	2.829	≤ 3.00	Good fit
RMSEA	0.070	≤ 0.08	Acceptable fit
p-close	0.045	> 0.05 (ideal)	Marginally acceptable
CFI	0.958	≥ 0.90	Good fit
GFI	0.962	≥ 0.90	Good fit
AGFI	0.928	≥ 0.90	Good fit

Note: * based on Hair et al. (2010; as cited by Nikou et al., 2024)

4.3. Hypothesis Testing Using CB-SEM In AMOS

The hypotheses in this study were evaluated using Covariance-Based Structural Equation Modelling (CB-SEM) with AMOS software. The structural model (see Table 4 and Figure 1) demonstrated a good fit to the data based on established fit indices, justifying the interpretation of the path coefficients. The results of the hypothesis testing are detailed below.

4.3.1. Hypothesis 1 (H_1): Digital Innovation Significantly Influences Economic Growth.

This hypothesis was supported, with the analysis revealing a statistically significant and strong positive effect of digital innovation on economic growth. The standardised path coefficient was 0.752, with a critical ratio (C.R.) of 8.792 and a p-value less than 0.001, confirming a robust relationship.

4.3.2. Hypothesis 2 (H_2): Skill Acquisition Significantly Influences Economic Growth

The model provided strong evidence in support of this hypothesis. Skill acquisition was found to significantly and positively predict economic growth, with a standardised estimate of 0.833 and a C.R. of 10.870 ($p < 0.001$).

4.2.3. Hypothesis 3 (H_3): Digital Innovation Significantly Influences Skill Acquisition

This hypothesis was also confirmed with the results of the analysis indicating that the relationship between digital innovation and skill acquisition was significant, with a standardised path coefficient of 0.420, a C.R. of 3.664, and a p-value less than 0.001, indicating that digital innovation plays a substantial role in facilitating skill development.

4.3.4. Hypothesis 4 (H_4): Skill Acquisition Mediates the Relationship Between Digital Innovation and Economic Growth

The mediation analysis revealed a total standardised effect of 1.044 from digital innovation to economic growth through skill acquisition, thereby establishing the mediating role of skill acquisition. This finding highlights the indirect pathway through which digital innovation enhances economic outcomes via human capital development.

Table 4: Regression Weights for the Structural Model Paths.

Predictor → Outcome	Estimate	Standardised Estimate	S.E.	C.R.	p-value
Digital Innovation → Economic Growth	1.000	0.752	—	8.792	***
Skill Acquisition → Economic Growth	1.000	0.833	—	10.870	***
Digital Innovation → Skill Acquisition	0.205	0.420	0.056	3.664	***

Note: **p** < .001. C.R. = Critical Ratio; S.E. = Standard Error.

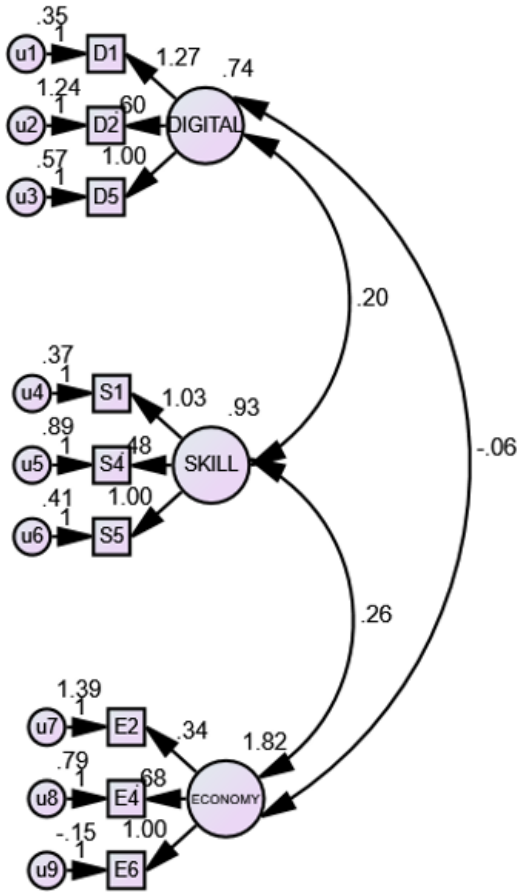

Figure 1: Structural Equation Model (SEM) of the study with path diagram.

4.4. Discussion of Findings

The positive and statistically significant relationship between digital innovation and economic growth aligns with the work of Jiao and Sun (2021) as well as Omoniyi (2025), who argue that the adoption of digital technologies helps reduce transaction costs, streamline operational processes, and enhance service delivery. Within the context of the Nigeria Immigration Service (NIS), this suggests that digital tools, such as automated border controls, biometric systems, and online visa processing, can improve institutional efficiency, reduce bottlenecks, and attract foreign direct investment through more reliable and secure immigration services.

Similarly, the significant impact of skill acquisition on economic growth affirms the findings of Goulart *et al.* (2022) and Muraina and Emek (2023), who emphasised that investments in human capital are essential to realising the full benefits of the digital economy. In practice, this implies that even the most advanced digital systems may underperform if employees lack the requisite technical and soft skills to operate, manage, and adapt to such technologies. Therefore, consistent training, upskilling, and capacity-building initiatives are not merely supportive, they are foundational to driving meaningful economic outcomes.

The study's mediation analysis further reinforces the indispensable role of skill acquisition in linking digital innovation to economic growth. This supports the arguments of Zervas and Stiakakis (2024) and Luo *et al.* (2023), who contend that digital technologies, on their own, cannot produce optimal results unless embedded within a framework of ongoing human capital development. Essentially, it is through equipping personnel with the right competencies that digital innovations are translated into tangible organisational and economic

performance.

Consequently, the findings of this study offer evidence that both digital innovation and skill acquisition play important roles in facilitating trade and investment, ultimately contributing to broader economic growth. These results resonate strongly with the growing body of literature that positions digital transformation and human capital development as central drivers of development in emerging economies.

5. CONCLUSION AND IMPLICATIONS FOR POLICY AND PRACTICE

5.1. Conclusion

This study explored the complex interplay between digital innovation, skill acquisition, and economic growth (conceptualised here as the facilitation of international trade and investment), within the institutional framework of the Nigeria Immigration Service (NIS). Utilising a robust analytical approach through CB-SEM, the findings established that digital innovation exerts a direct and statistically significant effect on economic growth. More importantly, the study unveiled a compelling mediating role for skill acquisition, illustrating that the capacity of digital innovation to yield macroeconomic dividends is significantly enhanced when public institutions simultaneously invest in human capital development.

This integrative outcome advances a critical thesis: that digital transformation alone is insufficient to catalyse economic advancement unless it is embedded within a broader organisational learning ecosystem. By empirically validating this complementary capability perspective, the study provides theoretical clarity and practical direction on how digital innovation, when accompanied by strategic skill acquisition, can function as a transformative lever for national development. It shifts the discourse from mere technology adoption to institutional readiness, anchoring innovation outcomes on the absorptive capacity of the workforce.

Additionally, the study challenges reductionist assumptions within dominant policy narratives that prioritise infrastructural digitalisation while underestimating the socio-technical systems required to harness it. It presents evidence that economic performance, particularly in critical state institutions like immigration services, is contingent upon a balanced policy framework that foregrounds both digital investment and workforce empowerment.

Furthermore, the research offers a model for public sector innovation grounded in the realities of emerging economies, where resource constraints, policy inertia, and institutional rigidity often hinder digital dividends. By linking internal capabilities to broader economic imperatives such as trade facilitation and investment attraction, the findings highlight the strategic importance of digitally competent and future-ready public institutions.

In sum, the study offers a rigorous, context-sensitive, and policy-relevant conclusion: that the pathway to economic growth in the digital age is not paved by technology alone, but by the deliberate fusion of innovation with capacity-building strategies that empower institutions to adapt, absorb, and apply these technologies in service of national goals. This proposition is not only timely for Nigeria but broadly applicable to other developing countries striving to align public sector reform with the demands of a digital global economy.

5.2. Theoretical Contributions

The study advances existing theoretical perspectives in public sector innovation and development economics by empirically validating skill acquisition as a mediating mechanism in the digital innovation–economic growth nexus. This adds nuance to the technology-led growth literature, positioning human capital development not merely as a parallel policy objective, but as a critical enabler of innovation outcomes. Furthermore, the research deepens the application of structural equation modelling in public administration contexts within sub-Saharan Africa, a region often underrepresented in such methodological frameworks.

5.3. Practical and Policy Implications

From a practical standpoint, the results point to the necessity of a balanced digital transformation strategy, one that simultaneously upgrades infrastructure and equips staff with the competencies needed to leverage such tools. For institutions like the NIS, this means embedding structured and recurrent training within the digitalisation agenda, ensuring that systems adoption is matched by system fluency.

At a policy level, the study suggests a recalibration of Nigeria's digital and economic development strategies. Policymakers are urged to mainstream skills development into national innovation frameworks, particularly within institutions whose functions are tied directly to trade facilitation, investment flows, and national security. Doing so will enhance institutional effectiveness, foster investor confidence, and strengthen Nigeria's positioning in the global economy.

5.4. Limitations, Directions for Future Research and Uniqueness of the Study

The study focuses on a single public institution in Nigeria. This focus may limit the generalizability of the findings to other public institutions in the country and similar settings outside Nigeria. To mitigate this limitation, future research should deploy multi-sectoral and cross-agency data collection to aid comparisons and gain deep-rooted contextual and sectoral insights. Nevertheless, the study offers a novel analytical framework that empirically links digital innovation and economic growth through skill acquisition, within a developing

country's public sector context. Furthermore, the study developed and validated reliable measures for assessing stakeholder perceptions of digital innovation, skill acquisition, and, international trade and investment facilitation (economic growth). These instruments can be deployed in future research.

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Appendix1: Scale Items.

Digital Innovation in NIS Operations Scale

D1: To what extent has NIS adopted digital systems in its operations?

( ) Very Low
( ) Low
( ) Moderate
( ) High
( ) Very High

D2: How do you rate the current use of digital systems (e.g., electronic visa processing, data management systems, automated fee collection systems, etc.) for service delivery at NIS?

( ) Very Low
( ) Low
( ) Moderate
( ) High
( ) Very High

D5: In your opinion, how much has automation reduced the time spent on manual tasks in your work?
( ) Very Low
( ) Low
( ) Moderate
( ) High
( ) Very High

Skill Acquisition Scale
S1: How many hours of training have you completed in the past year?
( ) None
( ) 1-10 hours
( ) 11-20 hours
( ) 21-30 hours
( ) 31+ hours
S4: To what extent do you feel confident that the training you received has enhanced your ability to perform your job effectively?
( ) Not Confident
( ) Slightly Confident
( ) Moderately Confident
( ) Very Confident
( ) Extremely Confident
S5: How confident are you in using digital tools and systems after receiving relevant training?
( ) Not Confident
( ) Slightly Confident
( ) Moderately Confident
( ) Very Confident
( ) Extremely Confident

Economic Growth (Facilitation of International Trade and Investment) Scale
E2: To what extent do you believe NIS's efforts have contributed to the efficiency of international trade facilitation?
( ) No Contribution
( ) Small Contribution
( ) Moderate Contribution
( ) Significant Contribution
( ) Very Significant Contribution
E4: To what extent do you believe NIS's initiatives (e.g., digitisation, training programmes) have contributed to the facilitation of foreign investment into the country?
( ) No Contribution
( ) Small Contribution
( ) Moderate Contribution
( ) Significant Contribution
( ) Very Significant Contribution
E6: To what extent do you believe NIS has contributed to improving its capacity to handle trade and investment transactions effectively?
( ) No Contribution
( ) Small Contribution
( ) Moderate Contribution
( ) Significant Contribution
( ) Very Significant Contribution