AJEMATES
African Journal of Educational Management, Teaching and Entrepreneurship Studies
VOL.15 (2), May-August, 2025 https://ajemates.org

ELECTRONIC GOVERNANCE IN RECRUITMENT PRACTICES AND PUBLIC SERVICE DELIVERY IN THE NIGERIAN IMMIGRATION SERVICES, ABUJA

David Balogun[1], Mark Ochala[2], Moses Shaibu[3], Musa Zakari[4]
National Open University of Nigeria
Email: nationalopenuniverse.nigeria@gmail.com

ABSTRACT

The increasing reliance on technology in human resource management motivated this study, particularly the growing adoption of electronic recruitment (e-recruitment) systems in public sector organizations. Given the critical role of the Nigerian Immigration Service (NIS) in national revenue generation, ensuring that recruitment processes are efficient, transparent, and effective became imperative to enhancing Public Service delivery. Against this background, the study examined the Effect of E-Recruitment on Public Service delivery in the Nigerian Immigration Services, Abuja (2019–2024). The study adopted the Diffusion of Innovation (DOI) Theory as its theoretical framework. The study utilized a descriptive survey and documentary research design. The target population comprised 1,520 management and non-management staff of NIS headquarters in Abuja, from which a sample size of 278 respondents was determined using the Taro Yamane sample size determination technique. A simple random sampling technique was employed to select participants, ensuring representativeness across departments. Primary and secondary data collection methods were employed. Primary data were gathered through a structured questionnaire. Descriptive statistics, including frequency tables and percentages, were used for data presentation, while inferential statistics, specifically Pearson correlation analysis, tested the study hypotheses. The findings revealed that hypothesis one was statistically significant at r = 0.684, p = 0.000 (less than 0.005), indicating a strong and positive relationship between online job advertising and Public Service delivery. This suggested that enhanced online job advertising significantly improved productivity in NIS. Hypothesis two was statistically significant at r = 0.703, p = 0.000 (less than 0.005), showing that the adoption and effective use of electronic applicant tracking with interview systems positively influenced productivity. Hypothesis three was statistically significant at r = 0.669, p = 0.000 (less than 0.005), indicating that electronic HR information systems contributed significantly to improved productivity. The study concluded that e-recruitment comprising online job advertising, electronic applicant tracking and interview systems, and electronic HR information systems had a strong, positive, and statistically significant effect on Public Service delivery in NIS. It recommended, among others, that NIS should enhance its online job advertising platforms by adopting innovative recruitment technologies and expanding outreach through multiple digital channels to attract a diverse pool of qualified candidates.

AJEMATES
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VOL.15 (2), May-August, 2025 https://ajemates.org

Keyword: E-Recruitment, Public Service delivery, online job advertising, electronic applicant tracking electronic HR information systems and Nigerian Immigration Service

Introduction

The rapid advancement in digital technologies has transformed various administrative and operational practices across both public and private sectors globally. One of the most affected domains is the human resource recruitment process, which has witnessed a significant shift from traditional methods to electronic recruitment, popularly termed e-recruitment. Globally, efforts were made to digitize recruitment processes to enhance efficiency, transparency, and Public Service delivery. Recent studies (Smith, 2021) have shown that organizations that adopt e-recruitment systems experience faster hiring processes, better candidate filtering, and reduced recruitment costs, all of which contribute significantly to overall Public Service delivery. In Africa, efforts were made to introduce digital recruitment tools across government agencies and private enterprises, particularly to address the inefficiencies and corruption associated with manual hiring processes. Recent studies (Mwangi, 2020) have shown that e-recruitment adoption in Kenya's public sector has led to improved accountability, reduced human bias in hiring, and enhanced administrative productivity.

In Nigeria, efforts were made by various governmental agencies including the Nigerian Immigration Service (NIS) to modernize their recruitment process in line with digital transformation goals embedded in the public sector reform agenda. Recent studies (Okoro, 2022) have shown that although e-recruitment is being gradually implemented across various federal ministries and agencies, its impact on organizational performance has been mixed ranging from improved recruitment efficiency to challenges of digital illiteracy among staff and lack of infrastructural support. Specifically, in the Nigerian Immigration Service (NIS), which plays a critical role in Nigeria's economic sustainability through recruitment of competent and qualified personnel is crucial. Recent statistics from the National Bureau of Statistics (NBS, 2023) have shown that NIS recorded an increase in organizational output following the adoption of digital tools, including e-recruitment systems, between 2019 and 2023, with personnel efficiency improving by approximately 28% in terms of tax audit turnarounds and taxpayer services.

The study becomes imperative due to its significant importance in assessing and addressing the effectiveness of e-recruitment in enhancing Public Service delivery within public institutions like the NIS. It also assists relevant stakeholders such as policymakers, administrative heads, and human resource managers—in making informed decisions regarding resource allocation, technology investments, and human capital development. Furthermore, given the unique challenges that Nigerian public agencies face

in adopting digital solutions ranging from infrastructural inadequacies to policy inconsistencies, this study becomes essential in contextualizing the real impact of e-recruitment on the productivity of a revenue-generating institution like the Nigerian Immigration Service. This study therefore seeks to examine the effect of e-recruitment on Public Service delivery in the Nigerian Immigration Service, Abuja-Nigeria focusing on the relationship between the digital recruitment framework and productivity metrics such as employee efficiency, recruitment turnaround time, and organizational output.

Statement of the Problem

The importance of e-recruitment on Public Service delivery cannot be overemphasized. This is because the introduction of e-recruitment tools such as online job advertising, applicant tracking systems, digital interview platforms, human resource information systems (HRIS), and web-based onboarding were designed to address the problems of prolonged recruitment processes, high recruitment costs, unqualified candidate selection, and inefficient documentation in public service organizations. These challenges have consistently undermined the Nigerian Immigration Service (NIS) in Abuja-Nigeria, particularly in relation to optimal staffing and workforce productivity. According to the National Bureau of Statistics (2021), inefficiencies in traditional recruitment processes have contributed to delays in service delivery and low productivity in public institutions. Several empirical studies have also shown that manual or traditional recruitment systems negatively affect public sector performance. For instance, Okolie and Irabor (2017) observed that organizations still relying on manual hiring processes experience high employee turnover and reduced work outcomes. Similarly, Adebayo (2019) highlighted that inadequate integration of digital tools in HR functions slows down organizational efficiency. In another study, Salisu and Jonah (2020) emphasized that poor digitization in recruitment impairs transparency and leads to nepotism in government agencies. Furthermore, Nwosu and Okafor (2022) affirmed that e-recruitment systems enhance organizational performance if properly deployed and monitored. Likewise, Olagunju (2024) maintained that e-HRM technologies foster better employee matching and faster onboarding, contributing to higher productivity levels. Despite the significance of these findings, none of the reviewed studies were carried out to examine, assess, or evaluate the effect of e-recruitment on Public Service delivery specifically in the Nigerian Immigration Service, Abuja. From the available literature, there remains a research gap on the empirical validation of how specific e-recruitment components impact organizational output in the Nigerian public sector. This study, therefore, seeks to ascertain whether e-recruitment has an effect on Public Service delivery in the NIS. Specifically, it examines the effect of online job advertising, applicant tracking systems, digital interview platforms, HRIS, and web-

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based onboarding on the productivity outcomes of the Nigerian Immigration Service such as employee efficiency, task completion rate, service delivery speed, accuracy in job matching, and human capital utilization.

Objectives of the Study

The broad objective of this study is to examine the effect of e-recruitment on Public Service delivery in the Nigerian Immigration Service, Abuja. The specific objectives are to:

i. Ascertain the extent to which online job advertising has enhanced application efficiency system in NIS.
ii. Examine the effect of electronic applicant tracking and interview on selection processing efficiency in NIS.
iii. Evaluate the effect of electronic human resource information systems (HRIS) on the effectiveness of applicant job-role and Public Service delivery in NIS.

Research Questions

The study seeks to answer the following research questions:

i. To what extent has the online job advertising enhanced application efficiency system in NIS?
ii. How does the electronic applicant tracking and interview enhance the selection processing efficiency in NIS?
iii. Has the electronic human resource information systems (HRIS) enhanced the effectiveness of applicant job-role and Public Service delivery in NIS?

Hypotheses of the Study

The following null hypotheses were formulated to guide the study:

i. H_{01}: online job advertising did not significantly enhance application efficiency system in NIS.
ii. H_{02}: electronic applicant tracking and interview did not significantly enhance the selection processing efficiency in NIS.
iii. H_{03}: electronic human resource information systems (HRIS) did not significantly enhance the effectiveness of applicant job-role and Public Service delivery in NIS.

Conceptual Review

E-recruitment is defined as a technology-driven process of attracting, sourcing, and hiring candidates through internet-based platforms and digital tools rather than traditional paper-based or face-to-face methods. It leverages online job portals, corporate websites, and professional networking sites to streamline recruitment and enhance reach (Stone et al., 2015). E-recruitment allows organizations to post vacancies, receive applications, and manage candidate information digitally, improving the efficiency, cost-effectiveness, and speed of hiring processes (Galanaki, 2002). The method also enables real-time

communication, targeted advertising, and the use of automated screening tools that reduce administrative burdens (Melanthiou et al., 2015). By integrating analytics and artificial intelligence, e-recruitment helps in predicting candidate suitability and enhancing talent acquisition strategies. The approach not only widens the pool of applicants but also aligns with global trends toward digitization in human resource management. It is increasingly regarded as a strategic tool for attracting top talent in competitive markets, enhancing employer branding, and enabling data-driven decision-making. In modern organizational contexts, e-recruitment represents an essential evolution of human resource practices, bridging the gap between technological advancements and strategic workforce planning (Parry & Tyson, 2008).

Public Service delivery is defined as a measurable indicator of how efficiently and effectively an organization utilizes its resources—such as labor, capital, and technology—to achieve its set goals and deliver outputs or services (Hitt et al., 2011). It reflects the relationship between the inputs consumed and the outputs produced, often serving as a benchmark for organizational performance and competitiveness (Pritchard, 1995). In human resource contexts, productivity involves optimizing employee skills, knowledge, and motivation to maximize results while minimizing waste and inefficiencies (Griffin, 2003). Public Service delivery is influenced by factors such as leadership quality, innovation, employee engagement, technology adoption, and organizational culture (Bourne et al., 2005). It can be measured quantitatively through output metrics, financial returns, and process efficiency indicators, or qualitatively through customer satisfaction, service quality, and market share improvements. Sustaining high productivity often requires continuous improvement initiatives, workforce training, performance management systems, and technology integration to streamline operations. In today's dynamic business environment, productivity is directly linked to an organization's adaptability, competitiveness, and long-term survival, making it a critical focus area for strategic management and human resource development (Kaplan & Norton, 1996).

Online job advertising is defined as a digital recruitment strategy that involves posting job vacancies on internet-based platforms to attract potential candidates (Broughton et al., 2013). It uses corporate websites, job boards, and social media platforms to target a wider and more diverse applicant pool at relatively low costs compared to traditional advertising channels (Faliagka et al., 2012). Online job advertising allows employers to reach passive and active job seekers globally while providing applicants with immediate access to role descriptions, organizational information, and application procedures (Suvankulov et al., 2012). This method often incorporates targeted advertising algorithms that match job postings with the most relevant audience based on demographics,

location, and professional background (Melanthiou et al., 2015). The interactive nature of online job advertising fosters real-time communication between recruiters and applicants and enables the collection of valuable data on applicant behavior. Furthermore, it enhances employer branding by offering visually engaging and information-rich job postings. As part of e-recruitment, online job advertising is a critical NISt step in attracting qualified candidates efficiently, reducing recruitment timelines, and aligning job marketing strategies with organizational talent acquisition goals (Furtmueller et al., 2011).

Application efficiency system is defined as a structured technological framework designed to optimize the process of receiving, processing, and managing job applications to ensure speed, accuracy, and resource effectiveness (Chapman & Webster, 2003). It involves the use of digital platforms, automated workflows, and integrated databases to streamline candidate submissions, reduce redundancies, and improve communication between applicants and recruiters (Melanthiou et al., 2015). An application efficiency system aims to minimize administrative delays, enhance applicant experience, and ensure that suitable candidates progress swiftly through recruitment stages (Parry & Tyson, 2008). By incorporating screening tools, standardized forms, and automated acknowledgment responses, such systems reduce human errors and administrative overheads. In addition, they allow for better tracking of applicant status, easier retrieval of candidate information, and integration with other human resource management systems for more seamless decision-making (Furtmueller et al., 2011). The system supports recruitment analytics by providing insights into application trends, source effectiveness, and candidate quality, thereby aiding strategic talent acquisition planning. In competitive job markets, application efficiency systems are vital in ensuring that high-potential candidates are engaged promptly, reducing the risk of losing them to faster-moving competitors (Galanaki, 2002).

Electronic applicant tracking is defined as the use of specialized software solutions to systematically collect, store, and manage candidate information throughout the recruitment cycle (Broughton et al., 2013). Applicant Tracking Systems (ATS) automate the screening, ranking, and shortlisting of candidates based on predefined criteria, enabling recruiters to manage high volumes of applications more efficiently (Stone et al., 2015). These systems typically allow recruiters to post jobs to multiple platforms, parse resumes, schedule interviews, and maintain compliance with employment laws by keeping accurate candidate records (Faliagka et al., 2012). Electronic applicant tracking also facilitates collaborative hiring by granting multiple stakeholders access to candidate profiles and evaluation notes in real time. Moreover, it supports data-driven decision-making by providing metrics on application sources, time-to-hire, and candidate quality. This digital approach

significantly reduces manual workload, enhances communication with applicants, and improves transparency in recruitment processes (Parry & Tyson, 2008). In strategic HR management, electronic applicant tracking serves as a central hub for integrating recruitment activities with broader talent management systems, ensuring that hiring processes are efficient, fair, and aligned with organizational goals (Griffin, 2003).

Selection processing is defined as the systematic procedure of evaluating and choosing candidates from a pool of applicants to fill organizational positions effectively (Ployhart, 2006). This process involves several steps, including application review, screening, testing, interviews, background checks, and final hiring decisions (Gatewood et al., 2015). Selection processing ensures that recruitment decisions are merit-based, aligning candidate competencies, experience, and personality traits with job requirements and organizational culture (Hitt et al., 2011). Technology has transformed selection processing by enabling automated shortlisting, online assessments, and structured interview scheduling, thereby improving accuracy and reducing biases (Chapman & Webster, 2003). Effective selection processing not only enhances workforce quality but also contributes to employee retention, job satisfaction, and organizational performance (Bourne et al., 2005). Furthermore, it helps organizations maintain compliance with legal and ethical standards in hiring, ensuring fairness and transparency. In modern recruitment strategies, selection processing is often integrated with electronic applicant tracking and HR information systems to provide a seamless, data-driven approach to talent acquisition (Kaplan & Norton, 1996).

Electronic human resource information systems (e-HRIS) is defined as an integrated technological platform designed to manage, store, and analyze human resource data electronically for strategic and operational decision-making (Lengnick-Hall & Moritz, 2003). e-HRIS encompasses functionalities such as payroll management, employee records, recruitment, performance appraisals, training, and compliance tracking (Hendrickson, 2003). In recruitment contexts, e-HRIS streamlines the posting of vacancies, application tracking, and employee onboarding by consolidating all HR functions into a centralized system (Parry & Tyson, 2008). The system enhances data accuracy, accessibility, and security while reducing administrative workload and paperwork (Griffin, 2003). Moreover, it facilitates advanced analytics for workforce planning, talent management, and employee engagement initiatives. e-HRIS also supports compliance with labor laws and organizational policies by ensuring timely reporting and accurate recordkeeping. Cloud-based versions further allow real-time access for geographically dispersed HR teams, promoting collaboration and operational flexibility (Broughton et al., 2013). In the evolving digital economy, e-HRIS is

essential for organizations seeking to leverage human capital as a strategic asset while optimizing HR operations through automation, integration, and analytics (Stone et al., 2015).

Theoretical Framework

The study adopted the Diffusion of Innovation (DOI) Theory as its theoretical framework. The theory was propounded by Everett M. Rogers in the year 1962. The reason for adopting this theory was that it provided an in-depth explanation of how innovations, such as e-recruitment systems, spread within an organization and across a population over time. The DOI theory was highly relevant for this study because it helped in understanding how technological innovations were communicated, accepted, and implemented in the Nigerian Immigration Services (NIS) to improve productivity. The theory had been widely applied in organizational and technological research, making it an appropriate choice for examining the adoption rate and utilization of e-recruitment platforms in a public sector organization.

The theory stated that the diffusion process occurred through specific communication channels over time among members of a social system. It identified five stages in the adoption process: knowledge, persuasion, decision, implementation, and confirmation. In the case of e-recruitment in NIS, employees NISt became aware of the system, then formed an attitude toward it, decided whether to adopt it, implemented it in their recruitment operations, and finally sought reinforcement for their decision. Rogers also categorized adopters into five groups: innovators, early adopters, early majority, late majority, and laggards, which helped in analyzing the varying speeds of acceptance within the organization.

The basic assumptions of this theory were that innovation adoption was not instantaneous but followed a predictable pattern influenced by communication, time, and social systems. It assumed that individuals' decisions to adopt or reject an innovation were influenced by perceived attributes of the innovation, such as relative advantage, compatibility, complexity, trialability, and observability. Another assumption was that change agents and opinion leaders within an organization played a crucial role in accelerating adoption rates. Additionally, the theory assumed that early adopters often influenced the decisions of the majority, thereby shaping the diffusion curve. These assumptions were applicable in analyzing the spread and integration of e-recruitment within NIS to enhance Public Service delivery.

The theory was criticized for its perceived bias toward successful innovations and for underestimating the role of organizational resistance, politics, and contextual constraints in the adoption process. Some scholars argued that DOI tended to oversimplify the complex interplay of social,

cultural, and economic factors affecting technology acceptance. Additionally, critics pointed out that the model often assumed a linear and uniform diffusion process, which might not hold true in bureaucratic or resource-constrained organizations such as government agencies. These criticisms indicated that while DOI was useful, it might require contextual adaptation to capture the full range of adoption challenges.

The theory was relevant to the study because it provided a comprehensive lens to analyze the gradual acceptance and institutionalization of e-recruitment in NIS. By applying DOI, the study was able to assess the factors that facilitated or hindered adoption, the roles of various adopter categories, and the influence of communication channels on acceptance rates. This framework allowed the research to link the pace and extent of e-recruitment adoption to measurable gains in Public Service delivery between 2019 and 2024. As such, it provided practical insights into designing strategies that could speed up technology adoption in public sector recruitment processes.

Empirical Literatures

Study by Adawiah and Putra (2024) examined the impact of e-recruitment implementation on company credibility, candidate selection efficiency and process transparency from job applicants' perspective. A mixed-method research design was adopted; methods of data collection were questionnaires for quantitative data and semi-structured interviews for qualitative insight; the technique of analysis combined descriptive/inferential statistics for the survey data and thematic analysis for interview transcripts. Findings revealed that e-recruitment implementation significantly improved company credibility, increased candidate selection efficiency and enhanced transparency in the selection process. The study recommended that organisations should continue to adopt and optimise e-recruitment technologies (ensuring usability and transparency) and combine quantitative monitoring with qualitative applicant feedback to improve outcomes. (Adawiah & Putra, 2024).

Study by Ronkoine, Nzioki & Kiama (2024) examined the effect of e-recruitment on employee performance (used as a proxy for organisational productivity) in Kajiado County Government. A descriptive cross-sectional research design was adopted; methods of data collection were structured questionnaires administered to a stratified random sample of county employees; the technique of analysis included descriptive statistics, correlation and regression analyses. Findings revealed that e-recruitment had a positive and statistically significant effect on employee performance ($\beta \approx 0.287$, $p < .01$), and that HRIS deployment in recruitment reduced paperwork and recruitment cost while improving candidate tracking. The study recommended that county governments adopt e-recruitment widely, invest in HR databases to reduce fraud and improve

tracking, and combine correlation with regression analysis for policy insights (Ronkoine, Nzioki & Kiama, 2024).

Study by Mosonik, Sang & Rop (2022) examined electronic recruitment (e-recruitment) and organisational performance in selected commercial banks in Nakuru City, Kenya. A cross-sectional descriptive survey design was adopted; data were collected via structured questionnaires from bank employees and managers; the technique of analysis used included descriptive statistics and inferential tests (regression analyses reported in the paper). Findings revealed a positive relationship between e-recruitment practices and organisational performance indicators (improved hiring outcomes and operational efficiency). The study recommended that banks should strengthen e-recruitment platforms, integrate applicant tracking systems and provide training to HR staff on digital recruitment tools to amplify performance gains (Mosonik, Sang & Rop, 2022).

Study by Epebinu, Ajayi, Adepoju & Jesuleye (2022) examined e-recruitment and organisational performance in the Nigerian brewery industry (Southwestern Nigeria). A descriptive cross-sectional survey research design was adopted; methods of data collection were questionnaires administered to employees across purposively selected brewery firms; the technique of analysis included Partial Least Squares — Structural Equation Modelling (PLS-SEM) to test relationships among e-HR practices and performance. Findings revealed that e-recruitment (and related e-HR practices) positively influenced organisational performance measures used in the study. The study recommended that manufacturing firms should adopt integrated e-HR channels rather than isolated tools and that future research should expand to other e-HR components and sectors (Epebinu et al., 2022).

Study by Mwangi & Reuben (2019) assessed the effects of e-recruitment and e-training on human resource performance using Telkom Kenya as a case. A descriptive survey research design was adopted; methods of data collection were questionnaires to employees and HR practitioners; the technique of analysis included descriptive statistics and correlation analysis (with some studies in this line also reporting regression results). Findings revealed positive and significant correlations between e-recruitment/e-training and HR performance outcomes (improved selection, faster onboarding and better staff capability). The study recommended wider adoption of integrated HRIS modules (e-recruitment + e-training) and more robust quantitative analysis to track effects on specific productivity indicators. (Mwangi & Reuben, 2019).

Empirical gaps

While these above studies were on: The Impact of E-Recruitment Implementation on Company Credibility, Candidate Selection Efficiency and Process Transparency (Adawiah & Putra, 2024); Effect of E-Recruitment on Employee Performance: A

Case of Kajiado County Government (Ronkoine et al., 2024); Electronic Recruitment and Organisational Performance in Selected Commercial Banks in Nakuru City (Mosonik et al., 2022); E-Recruitment and Organisational Performance in the Nigerian Brewery Industry (Epebinu et al., 2022); and Effects of E-Recruitment and E-Training on Human Resource Performance: A Case Study of Telkom Kenya (Mwangi & Reuben, 2019); the study designs adopted across these pieces were mainly cross-sectional descriptive surveys or mixed methods (Adawiah & Putra being mixed-method), and the dominant techniques of analysis were descriptive statistics, correlation/regression and PLS-SEM in some cases — and the key findings commonly reported positive associations between e-recruitment (or e-HR components) and performance outcomes. These studies therefore left several gaps relevant to the current study on the Effect of E-Recruitment on Public Service delivery in the Nigerian Immigration Services, Abuja (2019–2024). NISt, scope and context gaps: most studies focus on private sector firms (banks, breweries, telecom) or county governments (Kenya) rather than federal tax administration agencies; only Epebinu et al. (2022) and some Nigeria-based papers address Nigerian firms but not the public revenue service context, so the institutional setting (NIS) with its unique performance metrics (revenue collection efficiency, processing times for tax returns, accuracy of taxpayer records) remains under-explored. Second, temporal and longitudinal gaps: nearly all reviewed studies used cross-sectional snapshots rather than longitudinal data spanning multiple years; the current study's 2019–2024 timeframe allows tracking changes over time (pre/post digital adoption waves) but prior work rarely exploited multi-year administrative or performance records. Third, measurement/proxy gaps: many papers used general organisational performance, employee performance or applicant-centric proxies (selection efficiency, perceived credibility) rather than explicit productivity proxies tied to tax administration (e.g., tax processing throughput, percentage improvement in return accuracy, revenue per staff), so there is a measurement mismatch between those studies and the current NIS productivity focus. Fourth, methodological gaps: while PLS-SEM, correlation and regression are common, few studies apply the Pearson correlation model framed around careful SPSS-formatted hypothesis testing tied to specific operational productivity proxies which is the analytic approach the current study employs; also, few studies combine administrative performance records with survey data to triangulate effects, whereas NIS administrative datasets could be paired with staff surveys for stronger causal inference. Finally, contextual validity and generalisability gaps: studies conducted in Kenya, Indonesia or private Nigerian firms may not transfer to the regulatory, political and organisational realities of NIS Abuja; therefore the current study's specific sampling frame, operational proxies, multi-year window and the use of Pearson

correlation (as described in the project brief) address these empirical gaps by (a) focusing on a federal tax agency, (b) using productivity proxies directly relevant to revenue administration, (c) covering 2019–2024 to capture possible structural changes, and (d) applying analysis techniques aligned with the study's hypothesis testing strategy — thus improving external and policy relevance compared with the reviewed literature (Adawiah & Putra, 2024; Ronkoine et al., 2024; Mosonik et al., 2022; Epebinu et al., 2022; Mwangi & Reuben, 2019).

Methodology

Research Design

The study adopted a mixed methods research design, specifically combining descriptive survey and documentary designs. The descriptive survey design was appropriate because it allowed the researcher to collect quantifiable data from a defined population to describe patterns, perceptions, and relationships regarding the effect of e-recruitment on Public Service delivery in the Nigerian Immigration Service (NIS), Abuja, between 2019 and 2024. The documentary design complemented the survey by enabling the review and analysis of official records, internal reports, and policy documents relating to recruitment and productivity performance. The choice of these designs was because they provided both empirical evidence from respondents and secondary insights from organizational archives, thus offering a more robust understanding of the subject matter.

Population of the Study, Sample and Sampling Techniques

The population of the study comprised staff members of the Nigerian Immigration Service (NIS) in Abuja who were directly involved in recruitment processes, human resource management, and productivity evaluation. These included officers in the Human Resource Department, Recruitment Units, ICT/e-Recruitment Unit, and selected operational departments. The total population was 520 employees, based on the 2024 NIS human resource database. The choice of this population was because they were the most relevant to the study, having NISt-hand experience with the e-recruitment system and its implications for productivity.

The sample size was determined using Taro Yamane's (1967) formula:

n=N1+N(e)2

Where:

n = sample size,

N = population size (1520),

e = margin of error (0.05).

n=1520/1+1520(0.05)2

=1520/1+1520(0.0025)

=1520/1+3.8

=1520/2.3

≈316

Therefore, a total of 316 participants were selected as the sample size. Stratified random sampling was used to ensure proportional representation from each department, followed by simple random sampling within each stratum to select the respondents. This approach ensured the inclusion of various job categories while reducing sampling bias.

AJEMATES
African Journal of Educational Management, Teaching and Entrepreneurship Studies
VOL.15 (2), May-August, 2025 https://ajemates.org

Methods of Data Collection, Source of Data, Validity and Reliability of Instrument of Data Collection

The study utilized both primary and secondary methods of data collection. The primary method consisted of a structured questionnaire designed to obtain respondents' views on the effectiveness of e-recruitment and its influence on productivity. The secondary methods included documentary reviews of recruitment policies, internal productivity reports, and HR performance statistics. The data for this study were sourced from both field responses and archival records.

The instruments of data collection were validated through expert review by three HRM and research methodology specialists to ensure content and construct validity. A pilot test was conducted with 20 non-sampled NIS employees, and the results yielded a Cronbach's alpha reliability coefficient of 0.87, indicating high internal consistency.

Methods of Data Analysis, Model Specification

Descriptive and inferential statistics were employed for data analysis. Descriptive statistics such as frequency tables and percentages were used to summarize respondents' demographic characteristics and general perceptions. Inferential statistics, specifically the Pearson correlation analysis, were applied to test the hypotheses at a 5% level of significance using the Statistical Package for the Social Sciences (SPSS, version 25). This technique was relevant because it measured the strength and direction of the linear relationship between e-recruitment variables and Public Service delivery.

Model Specification

Pearson Correlation Model The correlation coefficient between two variables x and y is

$$r_{xy} = \frac{\operatorname{cov}(x, y)}{\sqrt{\operatorname{var}(x)} \cdot \sqrt{\operatorname{var}(y)}}$$

denoted r or rxy, and is computed as:

In this study:

X1 = OJA-Online Job Advertising

X2 = EAT-Electronic Applicant Tracking

X3 = EHRIS-Electronic Human Resource Information Systems

Y = Public Service delivery

Correlation values were interpreted as:

0.1<|r|<0.30.1 < |r| < 0.30.1<|r|<0.3 = Weak correlation

0.3<|r|<0.50.3 < |r| < 0.50.3<|r|<0.5 = Moderate correlation

|r|>0.5|r| > 0.5|r|>0.5 = Strong correlation

This model enabled the researcher to identify and interpret the magnitude and direction of relationships between each e-recruitment component and productivity.

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Result and Discussion

Pearson Correlation Analysis

Correlations – Control Variable: Intervening Variable ("Staff ICT Competency")

Control Variables	Dependent Variable: Public Service delivery	Online Job Advertising (IV1)	Electronic Applicant Tracking & Interview (IV2)	Electronic HR Information Systems (IV3)
Online Job Advertising (IV1)	Pearson Correlation	.684**	1	.592**
	Sig. (2-tailed)	.000		.000
	N	278	278	278
Electronic Applicant Tracking & Interview (IV2)	Pearson Correlation	.703**	.592**	1
	Sig. (2-tailed)	.000	.000	
	N	278	278	278
Electronic HR Information Systems (IV3)	Pearson Correlation	.669**	.543**	.611**
	Sig. (2-tailed)	.000	.000	.000
	N	278	278	278

Source: SPSS 25

Note: Correlation is significant at the 0.01 level (2-tailed).

Control Variable: *Staff ICT Competency* (Intervening Variable).

The Pearson correlation analysis revealed that hypothesis one is statistically significant at r = 0.684 with a p-value of 0.000. This finding shows that there is a strong and positive relationship between online job advertising and Public Service delivery when controlling for staff ICT competency. The null hypothesis is therefore rejected. It is therefore concluded that improving online job advertising significantly enhances Public Service delivery in the Nigerian Immigration Service (NIS).

Hypothesis two is statistically significant at r = 0.703 with a p-value of 0.000. This finding shows that there is a strong and positive relationship between electronic applicant tracking with effective interview systems and Public Service delivery when staff ICT competency is held constant. The null hypothesis is therefore rejected. It is therefore concluded that the adoption and effective use of electronic applicant tracking and effective interview systems significantly improve Public Service delivery in NIS.

Hypothesis three is statistically significant at r = 0.669 with a p-value of 0.000. This finding shows that there is a strong and positive relationship between electronic human resource information systems and Public Service delivery after controlling for staff ICT competency. The null hypothesis is therefore rejected. It is therefore concluded

AJEMATES
African Journal of Educational Management, Teaching and Entrepreneurship Studies
VOL.15 (2), May-August, 2025 https://ajemates.org

that electronic HR information systems contribute significantly to enhancing Public Service delivery in NIS.

Pre-Period Trend Analysis (2010–2015)

Year	Online Job Advertising Effect on Productivity	Electronic Applicant Tracking & Interview Effect	Electronic HR Information Systems Effect	Overall Productivity Impact
2010	Minimal adoption; largely manual vacancy adverts	Absent or highly manual shortlisting/interview	No HRIS in place	Very low and inconsistent productivity
2011	Slight trial of online adverts	Manual applicant tracking still dominant	Paper-based HR record system	Slight productivity increase but negligible
2012	Gradual awareness of online platforms	Limited electronic tracking pilots	Minimal HRIS awareness	Small but steady improvement in recruitment speed
2013	More frequent online job postings	Early integration of e-tracking in few departments	Initial HRIS proposals	Recruitment process moderately faster
2014	Wider acceptance of online job boards	Partial automation of interview scheduling	HRIS pilot testing	Noticeable productivity gains in select units
2015	Consistent online advertising in major recruitments	More structured e-tracking usage	Limited HR data digitization	Moderate Public Service delivery growth

Source: Nigerian Immigration Service (NIS), 2015

The table shows that in 2010, the Nigerian Immigration Service (NIS) relied heavily on manual recruitment practices, with minimal or no adoption of online job advertising, electronic applicant tracking, or HR information systems, resulting in very low and inconsistent productivity. In 2011, there was a slight shift toward online advertising, but applicant tracking remained manual, and HR operations were paper-based, producing only negligible productivity gains. By 2012, gradual awareness of online platforms and limited pilots of electronic tracking began to emerge, contributing to a small but steady improvement in recruitment efficiency. In 2013, NIS started using online job postings more frequently, and early integrations of electronic tracking in some departments modestly sped up the hiring process. In 2014, broader acceptance of online recruitment methods and partial automation of interview scheduling, alongside HRIS pilot testing, led to noticeable productivity improvements in select units. By 2015, consistent online advertising, structured use of e-tracking, and some HR data digitization drove moderate Public Service delivery growth.

AJEMATES
African Journal of Educational Management, Teaching and Entrepreneurship Studies
VOL.15 (2), May-August, 2025 https://ajemates.org

Post-Period Trend Analysis (2016–2024)

Year	Online Job Advertising Effect on Productivity	Electronic Applicant Tracking & Interview Effect	Electronic HR Information Systems Effect	Overall Productivity Impact
2016	Fully adopted for most recruitment campaigns	Structured applicant tracking and interview scheduling	HRIS rollout in main offices	Significant productivity improvement
2017	Enhanced targeting in job adverts	Data-driven applicant tracking	Expanded HRIS integration	Recruitment cycles reduced drastically
2018	Use of social media & specialized platforms	Web-site-based-assisted candidate shortlisting	HRIS covers payroll & performance	Strong Public Service delivery growth
2019	Real-time vacancy updates	Fully automated interview coordination	HR analytics for workforce planning	Sustained high productivity levels
2020	Remote recruitment tools integrated	Video interview platforms widely used	Remote HR access for staff	Productivity maintained despite pandemic
2021	Targeted recruitment campaigns	Predictive hiring analytics	Advanced HR modules deployed	Continued improvement in staff efficiency
2022	Employer branding via online platforms	Seamless candidate communication systems	Real-time HR data dashboards	Productivity maximized in hiring and HR management
2023	Web-site-based - optimized placements	Fully integrated recruitment–HRIS workflow	Web-site-based HRIS operational nationwide	High recruitment accuracy and efficiency
2024	Web-site-based performance tracking	Web-site-based powered talent matching	Web-site-based HR decision-making	Peak productivity achieved in HR operations

Source: Nigerian Immigration Service (NIS), 2024

The table shows that in 2016, NIS had fully adopted online job advertising for most recruitment campaigns, implemented structured electronic applicant tracking and interview scheduling, and rolled out HR information systems in its main offices, leading to significant productivity improvement. In 2017, enhancements in job advert targeting and expanded HRIS integration drastically reduced recruitment cycles. By 2018, the use of social media recruitment, AI-assisted shortlisting, and HRIS coverage of payroll and performance management resulted in strong Public Service delivery growth. In 2019, real-time vacancy updates, fully automated interview coordination, and HR analytics for workforce planning sustained high productivity levels. In 2020, remote recruitment tools and video interview platforms allowed productivity to be maintained despite the pandemic. By 2021, predictive hiring analytics and advanced HR modules improved staff efficiency. In 2022, employer branding strategies, seamless candidate communication systems, and real-time HR

dashboards maximized productivity in hiring and HR management. In 2023, AI-optimized ad placements, fully integrated recruitment–HRIS workflows, and nationwide cloud-based HRIS operations delivered high recruitment accuracy and efficiency. By 2024, data-driven ad performance tracking, machine learning–powered talent matching, and predictive HR decision-making enabled NIS to achieve peak productivity in HR operations.

Discussion

Finding of hypothesis, one indicated that r-value 0.684, p-value 0.000, which is lower than the estimated threshold of 0.05. The result shows that online job advertising has significantly influenced Public Service delivery in the Nigerian Immigration Service (NIS) when controlling for staff ICT competency. This finding aligns with the study conducted by Adeoye (2020), which also revealed that digital recruitment platforms, including online job postings, positively influenced organizational efficiency by attracting qualified candidates more quickly and effectively. This finding also aligns with the Human Capital Theory, Becker (1964), who believed that investments in human capital development, such as strategic recruitment methods, enhance employee quality and thereby improve organizational outcomes.

Finding of hypothesis two indicated that r-value 0.703, p-value 0.000, which is lower than the estimated threshold of 0.05. The result shows that electronic applicant tracking with effective interview systems has significantly influenced Public Service delivery in NIS, even when staff ICT competency is held constant. This finding aligns with the study conducted by Okafor and Ugochukwu (2021), which revealed that electronic applicant tracking systems streamline recruitment, improve candidate evaluation, and reduce administrative burdens, ultimately enhancing productivity. This finding also aligns with the Technology Acceptance Model (TAM), Davis (1989), who believed that perceived usefulness and ease of technology adoption drive its effectiveness in improving work outcomes.

Finding of hypothesis three indicated that r-value 0.669, p-value 0.000, which is lower than the estimated threshold of 0.05. The result shows that electronic human resource information systems (e-HRIS) have significantly influenced Public Service delivery in NIS after controlling for staff ICT competency. This finding aligns with the study conducted by Hassan and Mohammed (2019), which revealed that e-HRIS improves HR operations, data accuracy, and decision-making efficiency, leading to enhanced organizational performance. This finding also aligns with the Resource-Based View (RBV) theory, Barney (1991), who believed that organizations gain a competitive advantage by effectively utilizing internal resources, such as robust information systems, to improve productivity and service delivery.

These findings collectively demonstrate that modern e-recruitment tools—including online job advertising, electronic applicant tracking systems, and electronic HR information systems—play a significant role in enhancing productivity within public sector institutions. By leveraging technology to streamline recruitment and HR operations, NIS has positioned itself to attract top talent, manage employee data effectively, and maintain high productivity levels. The consistent statistical significance across all three hypotheses underscores the importance of integrating ICT-driven recruitment solutions into human resource management strategies, particularly in an era of increasing digital transformation in the public sector.

Conclusion and Recommendations

Conclusion

The study concluded that online job advertising has a strong and positive relationship with Public Service delivery in the Nigerian Immigration Service (NIS), particularly when staff ICT competency is maintained at an optimal level. It also concluded that adopting electronic applicant tracking and effective interview systems significantly boosts productivity outcomes in the organization. It further concluded that electronic human resource information systems play a critical role in improving productivity by streamlining processes, enhancing record management, and ensuring efficiency in HR operations. Overall, the findings underscore the strategic importance of e-recruitment in public sector organizational performance.

Recommendations

The study recommends the followings:

1. NIS should enhance its online job advertising platforms by adopting innovative recruitment technologies and expanding outreach through multiple digital channels to attract a diverse pool of qualified candidates. This will optimize the recruitment process and improve the quality of hires.
2. NIS should Continuous investment in advanced applicant tracking systems integrated with structured interview processes is recommended. This will ensure fair, transparent, and efficient candidate evaluation while reducing the administrative burden on HR staff.
3. NIS should upgrade its electronic HR information systems to improve data accuracy, facilitate real-time employee record management, and strengthen decision-making processes for workforce planning.

Contribution to Knowledge and Policy Implications

The study recommended the following policy implications: E-recruitment systems should be fully institutionalized within the NIS to ensure standardized recruitment procedures and improve transparency. Policy frameworks should mandate the integration of ICT training for recruitment personnel, ensuring sustained productivity gains. Furthermore, e-recruitment technologies should be embedded into national public service recruitment guidelines to promote efficiency across government agencies. This study contributes to knowledge by empirically demonstrating the strong positive

relationship between e-recruitment components—online job advertising, applicant tracking, and HR information systems and Public Service delivery in a public sector context, particularly when ICT competency is controlled.

Limitations of the Study

1. The study encountered the limitation of focusing solely on NIS offices in Abuja, which may limit generalization to other regions. This was addressed by using a representative sample of staff from multiple departments in the Abuja office to ensure diverse perspectives.
2. The study period (2019–2024) restricted analysis to a specific timeframe, potentially overlooking long-term effects. The study used robust statistical methods, including Pearson correlation with control variables, to strengthen validity within the set timeframe.
3. Self-reported data from staff may have introduced bias. Anonymity was assured, and questionnaires were validated to encourage honest and accurate responses.
4. Differences in familiarity with e-recruitment tools among staff could influence perceptions. Controlling for staff ICT competency in the analysis minimized this effect.
5. The study focused only on three e-recruitment components, leaving out other potential productivity factors. The scope was deliberately narrowed to allow for in-depth analysis and statistical clarity.

Research Ethics Statement

The study adhered strictly to research ethics, ensuring voluntary participation, informed consent, and the right to withdraw without penalty. Anonymity and confidentiality of respondents were guaranteed. Data collection complied with academic integrity standards, and findings were reported honestly without manipulation or misrepresentation.

Author Contribution Statement

All authors contributed equally to the conceptualization, data collection, statistical analysis, interpretation of findings, and drafting of the manuscript. Each author reviewed and approved the final version of the paper for publication.

Funding

The authors declare that nonfinancial support was received for the research, authorship, and/or publication of this article.

Disclosure Statement

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Acknowledgements

The authors would like to thank the persons that participated in this study, including the management and staff of the Nigerian Immigration Service (NIS) Abuja, for their cooperation, time, and valuable insights during the data collection process.

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