

Effect Of E-Recruitment Practices On Application Processes And Evaluation In The Nigeria Immigration Service.

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Abstract

The research investigated the influence of E-Recruitment methodologies on the application and evaluation processes within the Nigeria Immigration Service (NIS). The study utilized the Diffusion of Innovation (DOI) Theory as its conceptual framework to elucidate how technological advancements are embraced and enacted within public organizations. A descriptive survey combined with documentary analysis was employed as the research design. The study's population comprised 1,950 NIS officers and recruitment personnel across the country, from which a sample of 332 respondents was derived using the Taro Yamane formula. The simple random sampling method was applied to guarantee equitable representation among various departments. Data collection involved a structured questionnaire aimed at gathering pertinent information regarding career websites, online assessments, automated shortlisting, as well as application processes and evaluations. Secondary data were sourced from official NIS recruitment documentation, policy materials, and relevant literature. Descriptive statistics, including frequency distributions and simple percentages, were employed to summarize demographic and response data, while inferential statistics, notably Pearson correlation analysis, were utilized to evaluate the research hypotheses. The analysis indicated that the first hypothesis was statistically significant at $r = 0.684$ with a p -value of 0.000 ($p < 0.005$), demonstrating a robust positive correlation between career websites and online assessments when considering staff ICT proficiency. The second hypothesis was also statistically significant at $r = 0.592$ with a p -value of 0.000 ($p < 0.005$), highlighting a moderate positive relationship between career websites and automated shortlisting when the same controls were applied. Additionally, the third hypothesis was statistically significant at $r = 0.676$ with a p -value of 0.000 ($p < 0.005$), indicating a strong positive correlation between career websites and application processes as well as evaluation. The findings across all hypotheses showed that the effective use of e-recruitment systems markedly enhanced the speed, objectivity, and transparency of recruitment activities within NIS. In conclusion, the study affirmed that the integration of e-recruitment practices, particularly through well-structured career websites, was pivotal in improving recruitment results. Recommendations included that the Nigeria Immigration Service should continually enhance its systems to provide user-friendly interfaces, comprehensive search functionalities, and detailed job descriptions to facilitate applicant navigation and application completion. Furthermore, the automated shortlisting system should be consistently optimized to mitigate bias, enhance selection accuracy, and ensure adherence to organizational recruitment standards.

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1.0 Introduction

The swift implementation of digital processes within organizations has notably revolutionized recruitment strategies across various sectors, leading to the emergence of new frameworks aimed at enhancing efficiency and fostering inclusivity. Internationally, initiatives have been undertaken to effectively utilize e-recruitment systems for optimizing talent acquisition, minimizing biases, and increasing accessibility for a diverse range of applicants. Recent studies (Bano et al., 2024) indicate that artificial intelligence-based recruitment platforms, when thoughtfully engineered to prioritize diversity and inclusion, can greatly improve equitable hiring results; conversely, overlooking these factors may lead to an entrenchment of existing biases. In the African context, there have been initiatives to upgrade public-sector recruitment through digital avenues, with recent investigations (Oseni, 2024) revealing that although e-government initiatives present substantial opportunities to enhance administrative efficiency, their implementation encounters systemic obstacles like inadequate infrastructure and a deficit in electronic literacy. Specifically in Nigeria, strides have been made to establish transparent and inclusive hiring

protocols within agencies such as the Nigeria Immigration Service (NIS). Official communications highlighted the utilization of the official e-recruitment platform and reiterated NIS's commitment to equal opportunity by promoting applications from women, minority groups, and individuals with disabilities. Recent data illustrates that in 2024, NIS's recruitment process was entirely conducted online via its portal, aimed at various roles, with explicit directions to apply solely through the designated site and delineating additional advantages for candidates with advanced qualifications, thereby signalling a transition toward digital inclusivity. This study is crucial in critically evaluating and addressing how e-recruitment practices impact effective diversity management within the Nigeria Immigration Service. The findings could be invaluable for stakeholders such as policymakers, human resource professionals, and leaders in digital transformation, facilitating well-informed decisions, particularly as Nigeria continues its trajectory towards deeper digital integration in public sector recruitment. Hence, this research aims to investigate the influence of e-recruitment practices on employee diversity management within the Nigeria Immigration Service.

Statement of the Problem

The importance of e-recruitment practices on application processes and evaluation in modern organizations cannot be overemphasized. This is because the introduction of career websites, online assessments, and automated shortlisting and placement systems were designed to address persistent recruitment challenges such as delays in application processing, bias in candidate evaluation, high administrative costs, and low recruitment transparency. In Nigeria,

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particularly within government agencies such as the Nigeria Immigration Service (NIS), traditional recruitment methods have often been criticized for inefficiency, lack of transparency, and susceptibility to nepotism. These challenges are evidenced by statistics from the Bureau of Public Service Reforms (BPSR, 2021), which reported that over 48% of applicants to public sector jobs between 2010 and 2018 complained about long delays and unclear evaluation criteria. Similarly, empirical studies have shown mixed results on the impact of e-recruitment practices on recruitment efficiency. For instance, Adewale and Afolabi (2016) found that e-recruitment significantly reduced processing time in Nigerian banking institutions. Ugochukwu (2018) reported improved fairness in candidate selection in multinational companies using automated shortlisting. In a study by Olatunji and Lawal (2020), online assessments enhanced transparency in civil service recruitment in Lagos State. Furthermore, Okafor et al. (2021) showed that integration of career portals in oil companies improved application tracking and reduced cost per hire. More recently, Musa and Ibrahim (2023) revealed that automated applicant evaluation in a federal agency improved matching accuracy but faced challenges of digital literacy among applicants. Despite the importance of these issues, none of these studies was carried out to examine, assess, or evaluate the effect of e-recruitment practices on application processes and evaluation within the NIS, judging from the available literature. This study, therefore, seeks to ascertain whether e-recruitment practices operationalized through career websites, online assessments, automated shortlisting, applicant tracking systems, and digital applicant communication have an effect on application processes and evaluation efficiency, transparency, timeliness, fairness, and cost-effectiveness in the NIS. This study, therefore, examines the effect of e-recruitment practices on application processes and evaluation in the Nigeria Immigration Service.

The broad objective of this study is to examine the effect of e-recruitment practices on application processes and evaluation in the Nigeria Immigration Service. The specific objectives are to:

- i. Ascertain the extent to which career websites have enhanced information dissemination about equal recruitment opportunity in NIS.
- ii. Examine the effect of online assessments on evaluation processes in NIS.
- iii. Assess the effect of automated shortlisting on transparency recruitment processes in NIS.

The study seeks to answer the following research questions:

- i. To what extent have career websites enhanced information dissemination about equal recruitment opportunity in NI
- ii. What is the effect of online assessments on evaluation processes in NIS?
- iii. How does automated shortlisting enhance transparency recruitment processes in NIS?

The following null hypotheses were formulated to guide the study:

- i. H_{01} : Career websites have no significant effect on enhanced information dissemination about equal recruitment opportunity in NIS.

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- ii. H₀₂: Online assessments have no significant effect on fair evaluation processes in NIS.
- iii. H₀₃: Automated shortlisting has no significant has transparency recruitment processes in NIS.

Conceptual Review

E-recruitment refers to a technology-oriented strategy for attracting, selecting, and onboarding candidates through digital platforms, online tools, and internet-based applications (Parry & Tyson, 2008). This method utilizes web resources such as corporate career websites, job listing sites, and social media platforms to optimize and improve the recruitment process. It allows organizations to access a broader pool of candidates, lower recruitment costs, and increase efficiency over traditional paper-based approaches (Holm, 2010). By employing automation, e-recruitment simplifies the management of applicant information, interview scheduling, and candidate communication, thereby alleviating administrative tasks for human resources departments (Melanthiou, Pavlou, & Constantinou, 2015). Furthermore, it facilitates data-driven decision-making through the provision of real-time analytics related to applicant demographics, sourcing effectiveness, and conversion rates (Kapse, Patil, & Patil, 2012). Organizations gain advantages from e-recruitment in the form.

E-recruitment practices refer to a systematic collection of strategies, techniques, and protocols that organizations deploy to conduct recruitment activities online, aimed at attracting, evaluating, and selecting candidates (Parry & Olivas-Luján, 2011). Such methodologies encompass the creation of career websites, digital job postings, outreach via social media platforms, automated applicant tracking systems, and the incorporation of online assessments into the hiring process (Holm, 2010). These approaches are intended to improve operational efficiency, decrease recruitment expenses, and elevate the caliber of hires through the application of internet-based resources (Thompson, Braddy, & Wuensch, 2008). Furthermore, e-recruitment strategies focus on enhancing the candidate experience by ensuring that application platforms are intuitive, accessible, and compatible with mobile devices (Kapse, Patil, & Patil, 2012). They also necessitate that HR practitioners utilize search engine optimization, digital marketing strategies, and talent analytics to efficiently target and attract qualified candidates (Ahmed, 2020). The implementation of e-recruitment methodologies enables organizations to remain competitive in the global labor market, expedite hiring processes, and sustain talent pipelines through ongoing digital interactions (Bissola & Imperatori, 2013). By leveraging automation, big data, and artificial intelligence, these methodologies facilitate data-driven recruitment choices and synchronize talent acquisition with broader organizational growth objectives.

Application process refers to a sequence of organized steps and protocols through which individuals seeking employment present their qualifications, credentials, and supporting documentation to gain consideration for job openings (Breugh, 2013). Within e-recruitment frameworks, this process typically initiates with the exploration of an online job listing, followed by the completion of a digital application form, submission of a résumé or CV, and

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responses to preliminary screening questions (Chapman & Webster, 2003). Contemporary application processes often encompass automated acknowledgment systems, which validate the receipt of applications and provide ongoing updates regarding their status (Lievens & Chapman, 2019). A well-designed application process is characterized by user-friendliness, reduction of barriers to access, and equitable assessment of candidates (Stone, Deadrick, Lukaszewski, & Johnson, 2015). Additionally, organizations frequently align their application processes with applicant tracking systems (ATS) to consolidate candidate information and streamline the screening process (Holm, 2010). An efficiently structured application framework enhances employer branding by delivering a positive experience for candidates, thereby increasing the chances of attracting high-caliber applicants (Sills, 2014). Technological advancements have facilitated the development of more flexible, transparent, and responsive application methods that meet the expectations of a digitally adept workforce, while also promoting organizational efficiency in recruitment.

Application evaluation refers to a structured method of scrutinizing, scoring, and ranking job applications to assess candidate fit for specific roles (Breaugh, 2013). This process encompasses the evaluation of qualifications, competencies, experience, and other pertinent criteria against predetermined job standards (Gatewood, Feild, & Barrick, 2011). In e-recruitment settings, application evaluation frequently utilizes automated tools and algorithms to sift through applications based on criteria such as keywords, educational background, certifications, and relevant employment history (Holm, 2010). This technique enables organizations to efficiently manage large volumes of applications, thereby decreasing the time and expenses associated with manual evaluations (Stone et al., 2015). Evaluation may also encompass scoring systems, competency frameworks, and standardized rating mechanisms to maintain fairness and uniformity in selection decisions (Lievens & Chapman, 2019). Furthermore, digital evaluation methods may incorporate predictive analytics to anticipate candidate success based on historical data (Sills, 2014). The aim is to identify candidates whose qualifications align most closely with organizational needs, while simultaneously reducing bias, enhancing transparency, and ensuring compliance with equal opportunity mandates (Bissola & Imperatori, 2013).

Career websites are specialized online platforms employed by organizations to disseminate information regarding job openings, career development options, and corporate culture, aiming to attract potential job candidates (Allen, Van Scotter, & Otondo, 2004). These platforms often serve as integral components of an organization's official website, featuring functionalities such as searchable job postings, application submission functionalities, and multimedia resources that highlight the workplace environment (Thompson et al., 2008). Career websites are essential to e-recruitment strategies as they facilitate direct communication between organizations and candidates, circumventing reliance on third-party job boards (Holm, 2010). They also act as branding instruments, showcasing employee

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testimonials, diversity efforts, and corporate values to shape candidate perceptions (Cober, Brown, Levy, Keeping, & Cober, 2003). An effective career website includes user-friendly navigation, mobile compatibility, and search engine optimization to broaden reach and accessibility (Parry & Olivas-Luján, 2011). Some websites are integrated with social media networks, applicant tracking systems, and online assessment tools to enhance recruitment efficiency (Bissola & Imperatori, 2013). By delivering comprehensive, engaging, and current career information, these platforms play a pivotal role in attracting top-tier talent and supporting strategic workforce planning.

Information dissemination refers to the act of conveying pertinent, timely, and precise information to targeted audiences through suitable channels and formats (Rogers, 2003). In the realm of e-recruitment, this encompasses the strategic communication of job vacancies, application processes, organizational developments, and recruitment results to prospective candidates (Sills, 2014). Various channels such as career websites, email newsletters, job boards, social media, and tailored digital marketing campaigns can be utilized for this purpose (Parry & Tyson, 2008). Effective information dissemination promotes transparency in recruitment, mitigates the spread of misinformation, and ensures equitable access to job opportunities (Stone et al., 2015). It necessitates careful attention to content design, clarity of language, and audience segmentation to optimize engagement levels (Lievens & Chapman, 2019). In the digital recruitment environment, the timely provision of information is crucial for attracting applicants prior to deadlines while keeping them updated regarding their application status (Holm, 2010). The growing dependence on data analytics allows recruiters to assess the efficacy of various information channels and adjust their strategies accordingly (Ahmed, 2020). By making recruitment-related information widely accessible, organizations can bolster their employer reputation and draw a diverse pool of qualified candidates.

Equal recruitment opportunity represents a principle of recruitment that safeguards that all applicants receive fair, unbiased, and non-discriminatory consideration, irrespective of gender, ethnicity, age, religion, disability, or other protected attributes (Noe, Hollenbeck, Gerhart, & Wright, 2017). In e-recruitment, this principle mandates the design of online platforms and processes that are universally accessible and compliant with equal employment opportunity (EEO) legislation (Stone et al., 2015). This encompasses the use of inclusive job descriptions, unbiased screening algorithms, and accommodations for applicants with disabilities (Lievens & Chapman, 2019). Equal recruitment opportunity not only protects the rights of job candidates but also fosters organizational diversity, which is associated with enhanced creativity, problem-solving capabilities, and business performance (Shen, Chanda, D'Netto, & Monga, 2009). Technology empowers recruiters to anonymize applications, track demographic patterns in applicant pools, and implement strategies to reduce unconscious bias (Holm, 2010). Upholding equal opportunity in recruitment aids organizations in complying with legal standards, reinforces employer branding, and cultivates trust with stakeholders (Parry & Olivas-Luján, 2011).

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Online assessments are defined as digital platforms and tools utilized to evaluate the skills, knowledge, abilities, and personality characteristics of job applicants during the recruitment process (Arthur, Day, McNelly, & Edens, 2003). These assessments may consist of aptitude tests, technical skill evaluations, cognitive ability assessments, personality inventories, and situational judgment assessments administered through the internet (Ployhart, 2006). Within e-recruitment systems, online assessments facilitate organizations in efficiently screening extensive applicant pools, ensuring objective evaluation, and juxtaposing candidate performance against standardized criteria (Lievens & Chapman, 2019). Such assessments may employ adaptive technologies, utilizing algorithms to modify question difficulty based on the responses of the candidates (Sills, 2014). Additionally, they can integrate multimedia elements like videos or interactive situations to replicate job task scenarios (Arthur et al., 2003). The advantages of online assessments include cost-effectiveness, time efficiency, and the opportunity to provide immediate feedback to candidates (Parry & Tyson, 2008). Nevertheless, their efficacy relies on factors such as validity, reliability, and fair administration practices (Holm, 2010). Well-structured online assessments can enhance hiring decisions by accurately predicting job performance and mitigating subjective bias in evaluations.

Evaluation processes are recognized as systematic methodologies employed to assess the appropriateness of candidates for specific jobs by analyzing application materials, test outcomes, and interview performances against established criteria (Gatewood et al., 2011). Within the framework of e-recruitment, these processes frequently involve automated ranking mechanisms, structured scoring rubrics, and decision support analytics (Holm, 2010). They consist of multiple phases, including preliminary screening, competency assessment, behavioral evaluation, and the final decision review (Lievens & Chapman, 2019). The objective is to guarantee that hiring decisions are impartial, consistent, and aligned with job specifications (Stone et al., 2015). Digital evaluation methods may incorporate applicant tracking systems (ATS) to centralize candidate information and monitor decision-making trajectories (Parry & Tyson, 2008). Such systems can produce reports that assist recruiters in swiftly identifying leading candidates and establish a clear audit trail for compliance purposes (Sills, 2014). Effective evaluation processes minimize the risk of hiring mistakes, streamline the recruitment timeline, and bolster transparency in candidate selection (Bissola & Imperatori, 2013).

Automated shortlisting is described as the utilization of software algorithms and artificial intelligence to filter and prioritize job applications in accordance with predefined selection parameters (Upadhyay & Khandelwal, 2018). This methodology scans application materials, including résumés, cover letters, and online submissions for relevant keywords, qualifications, and experience related to the job (Holm, 2010). Automated shortlisting enables recruiters to drastically reduce the time spent on manual application reviews, resulting in quicker turnaround times and enhanced

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efficiency (Sills, 2014). Sophisticated systems can assign scores, rank applicants according to their suitability, and highlight candidates for additional examination (Parry & Olivas-Luján, 2011). These tools typically integrate with applicant tracking systems (ATS) and online assessment platforms to create a cohesive recruitment workflow (Ahmed, 2020). However, the precision and equity of automated shortlisting are contingent on the quality of input data, algorithmic transparency, and regular bias assessments (Upadhyay & Khandelwal, 2018). Properly implemented, automated shortlisting bolsters objectivity, facilitates equal recruitment opportunities, and accelerates the hiring process without compromising candidate quality.

Transparency in recruitment processes entails the practice of openly communicating recruitment criteria, methodologies, timelines, and the rationale behind decision-making to candidates, fostering fairness and trust (Chapman & Webster, 2003). In e-recruitment, transparency encompasses the clear articulation of job expectations, application procedures, evaluation techniques, and selection criteria on career websites and job advertisements (Stone et al., 2015). This transparency further includes timely communication with candidates regarding their application progress and the reasons for selection or rejection (Lievens & Chapman, 2019). Transparent recruitment fortifies employer credibility, encourages equal opportunity, and diminishes the risk of discrimination complaints (Holm, 2010). Digital recruitment systems bolster transparency by enabling candidates to monitor their application status in real-time and by maintaining accessible records of the selection process (Parry & Tyson, 2008). Moreover, transparency aids in managing candidate expectations, enhances employer branding, and improves the candidate experience even among those who are not selected (Bissola & Imperatori, 2013).

The research utilized the Diffusion of Innovation (DOI) Theory, originally formulated by Everett M. Rogers in 1962, as its conceptual framework. The choice of this theory was predicated on its capacity to elucidate the mechanisms through which innovations, specifically e-recruitment practices, are disseminated via various channels over time within a social system. According to the theory, the adoption of innovations is a multifaceted process shaped by several factors, including the attributes of the innovation itself, communication modalities, the temporal aspect, and the characteristics of the social system. It posits that both individuals and organizations navigate through distinct stages—knowledge acquisition, persuasion, decision-making, implementation, and confirmation—prior to the comprehensive adoption of an innovation. Key assumptions underpinning this theory include the belief that adoption is contingent upon perceived relative advantages, alignment with established values and practices, the complexity of the innovation, trialability, and the observability of outcomes. However, it has faced critiques for its overly linear approach, which fails to capture the intricate nuances of organizational change. The relevance of this theory to the current study lies in its ability to provide a framework for understanding how the Nigeria Immigration Service (NIS) adopted e-recruitment practices to enhance application processing and evaluation systems.

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According to the DOI theory, the diffusion of innovations transpires at different rates, determined by the categories of adopters: innovators, early adopters, early majority, late majority, and laggards. Within the NIS framework, the transition to e-recruitment represented a shift from traditional paper-based hiring methods to digital processes, including online applications, automated screening, and virtual assessments. This transition necessitated both the establishment of a robust technical infrastructure and the employees' readiness to accept the changes. The DOI framework effectively articulated how various departments and personnel within NIS adjusted to the innovation over time, demonstrating disparities in adoption rates correlating with ICT competencies, openness to change, and perceived advantages of the new system. The stages outlined in the theory aligned with the implementation schedule at NIS, wherein initial pilot programs laid the groundwork for progressive expansion and eventual full integration into the recruitment process.

Moreover, the DOI theory underscored the significance of communication channels in fostering awareness and encouraging the acceptance of innovations. For NIS, internal memos, training initiatives, and hands-on demonstrations served as vital communication conduits that shaped employees' perceptions and preparedness for utilizing e-recruitment tools. The theory detailed how the visibility of successful online recruitment efforts and affirmative feedback from applicants contributed to broader acceptance. Career websites and automated alerts further enhanced transparency and accessibility for applicants, thereby bolstering the diffusion process. The relevance of the DOI theory in this context highlighted that the successful adoption of e-recruitment transcended mere technological advancement; rather, it represented a progressive cultural and behavioral transformation facilitated by effective communication strategies.

The theoretical assumptions corresponded closely with the features of e-recruitment within NIS. For instance, the evident relative advantage of e-recruitment compared to traditional methods included reduced processing times, enhanced evaluation accuracy, and cost-effectiveness. Its compatibility was reflected in the alignment with Nigeria's overarching e-governance objectives. Trialability emerged as NIS initially piloted the system during select recruitment exercises before embarking on a full-scale rollout. The observability of outcomes was apparent as the organization was able to monitor measurable improvements in hiring efficiency and applicant satisfaction. Nevertheless, critiques of the theory have highlighted its insufficient attention to resistance against change and external obstacles, such as inadequate ICT infrastructure and low digital literacy among potential applicants.

In conclusion, the Diffusion of Innovation theory provided a robust framework for understanding the processes and determinants that influenced the adoption of e-recruitment within NIS. It illuminated the stages of adoption, the crucial role communication plays, and the impacts of perceived benefits and compatibility on the rate of adoption. While acknowledging its linearity criticisms, the theory's applicability to the discourse on the introduction, acceptance, and integration of technological innovations into institutional practices was emphasized. This theoretical underpinning

guided the study's exploration of the impacts of e-recruitment practices on application processes and evaluation, offering valuable insights for policy enhancements and improved implementation methodologies.

Empirical Literature and Gaps

The research conducted by Oyadiran (2023) investigated how various e-recruitment dimensions—including cost, time, the quantity of applicants, and the quality of applicants—affect organizational performance. Employing a secondary research design, the study gathered data through documentary sources and existing literature, analyzing it via thematic synthesis and descriptive/statistical summaries of secondary indicators. The results indicated a positive and significant impact of e-recruitment's cost, time, quantity, and quality on organizational performance, highlighting that savings in cost and time are primary drivers of enhanced outcomes. Consequently, it was recommended that organizations take these e-recruitment factors into account when developing online hiring practices in order to bolster performance (source: Oyadiran, 2023). Similarly, Singh (2022) explored the efficacy of e-recruitment processes within large Indian organizations, particularly in the hospitality and healthcare sectors. This study utilized a cross-sectional survey research design and collected data through structured questionnaires administered to 426 employees, HR managers, and senior managers across selected firms. Analytical techniques involved descriptive statistics, frequency analysis, and basic inferential statistics (including means, cross-tabulations, and some correlation/ANOVA tables). Findings revealed that e-recruitment provides a broader selection of qualified candidates and yields substantial savings in cost and time, with job portals and social networks, such as LinkedIn, being particularly significant. The study advocated for better integration of sourcing through social/job portals, training for HR personnel, and ongoing use of blended recruitment methods until full digital literacy is achieved (source: Singh, 2022). The work of Mindia and Hoque (2018) investigated the impact of e-recruitment and Internet utilization on recruitment processes within multinational corporations in Bangladesh. Adopting an exploratory survey research design, data were gathered through primary questionnaires completed by approximately 110–120 respondents from around 30 multinationals, utilizing convenience sampling and secondary materials for support. The analysis employed Pearson correlation, regression, and ANOVA to evaluate the relationships between e-recruitment and traditional recruitment metrics. Findings demonstrated a moderately positive relationship between e-recruitment and traditional recruitment methods, indicating that e-recruitment lessens dependency on traditional avenues while enhancing reach and efficiency. Recommendations included a sustained dual approach to e-recruitment, with targeted training and improvements to address any system inefficiencies. Research undertaken by Suraj and Kumari (2019) explored Applicant Tracking Systems (ATS) as an automated solution for recruitment and selection. Utilizing a descriptive research design based on secondary data review, the study analyzed secondary sources including industry descriptions, vendor documentation, and academic articles. The analysis involved descriptive synthesis and functional evaluation of ATS features and reported outcomes. Results indicated that ATS facilitates and accelerates recruitment processes, centralizes candidate information, and

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mitigates administrative workload; however, it may inadvertently exclude suitable candidates due to keyword filtering and necessitates user training and awareness. The authors recommended awareness initiatives, careful optimization of ATS keyword protocols, and a phased implementation alongside human oversight. Lastly, Babalola, Oyeniyi, and Adeyemi (2015) investigated the connection between electronic recruitment and organizational performance in selected Nigerian manufacturing firms. Employing a survey research design, data were gathered through structured questionnaires targeting HR heads, with a sample size of approximately 20. The technique of analysis utilized Pearson Product Moment Correlation (PPMC). Findings indicated that e-recruitment significantly correlates with improvements in cost savings and time management, exerting a stronger influence on these outcomes than other recruitment methods. Based on their findings, the authors suggested the development of simple and user-friendly corporate recruitment websites and enhancements in online verification processes.

Empirical gaps

The aforementioned research contributions encompass several studies, including Oyadiran's exploration of The Effects of Electronic Recruitment on Organizational Performance, which utilized secondary analysis and a descriptive/statistical synthesis, concluding positive correlations among cost, time, quality, and organizational performance. Additionally, Singh's investigation titled A study on the effectiveness of e-recruitment process in large-scale organizations relied on a cross-sectional survey design featuring descriptive and basic inferential statistics, revealing that e-recruitment enhances applicant quality while reducing both time and costs. Similarly, Mindia and Hoque's Effects of E-recruitment and internet on recruitment process employed an exploratory survey utilizing correlation, regression, and ANOVA methodologies, finding moderate positive relationships and a partial replacement of traditional recruitment methods. Suraj and Kumari provided insights in their descriptive study on Applicant Tracking Systems, highlighting that while ATS enhances the recruitment process, it poses risks of generating false negatives. Finally, the empirical investigation by Babalola et al. into the relationship between electronic recruitment and organizational performance applied survey methods and PPMC correlation, establishing a significant link between e-recruitment and savings in time and costs. Despite the collective contribution of these studies supporting the notion that e-recruitment yields substantial benefits in terms of time, cost, and applicant quality, they exhibit notable limitations when compared to the current investigation on Effect of E-Recruitment on Organizational Productivity in the Nigeria Immigration Services, Abuja, 2019–2024. Primarily, several studies rely heavily on secondary data or convenience/purposive small samples, such as Oyadiran's use of secondary synthesis and Suraj and Kumari's reliance on secondary literature, as well as Babalola et al.'s very limited purposive sample size of $n = 20$, which constrains external validity, particularly in a large public entity like the Nigeria Immigration Services (NIS). Furthermore, the majority of these studies primarily utilize bivariate correlations or basic descriptive/ANOVA techniques (as seen in Mindia & Hoque, Babalola et al., and the largely descriptive approach of Singh), thereby neglecting multivariate control and modeling approaches that account for institutional variables (such as staff ICT competency, job

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complexity, and bureaucratic constraints), which are systematically addressed in the current NIS study while examining its relationship with organizational productivity. Additionally, the geographical and sectoral contexts differ significantly, with Singh focusing on India's hospitality and healthcare sectors, Mindia & Hoque examining Bangladeshi multinationals, and Babalola et al. investigating Nigerian manufacturing, which limits direct comparability to a Nigerian federal revenue service—an institution with unique recruitment practices, regulatory environments, and organizational productivity metrics (e.g., clearance times, revenue management, fraud mitigation). Furthermore, although many studies concentrate on process outcomes (such as time, cost, applicant quantity/quality, and ATS functionalities), they often fail to connect e-recruitment directly to organizational productivity outcomes as measured by operational key performance indicators (KPIs) or to account for intervening variables—a critical gap that the NIS study seeks to address by explicitly linking e-recruitment components with productivity while controlling for staff ICT competency. Finally, the proxies employed across these studies vary (with some relying on perceived cost/time savings or self-reported applicant quality), whereas the present study adopts organizational productivity proxies that align with the strategic objectives of the NIS, thereby enhancing its policy relevance. In conclusion, while these studies provide a foundational understanding of the advantages of e-recruitment, they lack compatibility with the specific institutional focus, multivariate control frameworks, and productivity-oriented proxies of the current research, underscoring the necessity for context-specific, controlled Pearson correlation analysis within the NIS framework.

2.0 Methods and Materials

The research adopted a mixed-methods approach, integrating both descriptive survey and documentary methodologies. The descriptive survey component was aimed at gathering quantitative data from participants, while the documentary facet was utilized to retrieve pertinent secondary information from official records, policy documents, and institutional reports of the Nigeria Immigration Service (NIS). This methodological choice was made to ensure that both empirical evidence from participants and corroborative data from existing literature were included, thereby facilitating a comprehensive understanding of the influence of e-recruitment practices on application procedures and evaluation processes. The mixed-methods framework further supported triangulation, thereby augmenting the reliability and complexity of the findings through the integration of diverse data types.

The study's population included all personnel responsible for recruitment within the Nigeria Immigration Service (NIS), comprising human resource staff, information and communication technology (ICT) personnel, and departmental recruitment supervisors. This specific group was selected based on their direct knowledge and involvement with the e-recruitment system, making their contributions particularly significant to the research. The

total population was quantified as 1,950 (as per the NIS HR Department Report, 2024). To ascertain the sample size, Taro Yamenne's formula was utilized.

Consequently, a sample of 332 participants was identified. A stratified random sampling method was employed to ensure appropriate representation among various staff categories. Within each stratum, simple random sampling was applied to select the respondents. This strategy was chosen to mitigate sampling bias while simultaneously capturing the perspectives of all crucial staff groups.

The study incorporated both primary and secondary methods of data collection. Primary data were gathered through a structured questionnaire distributed among the selected staff members, while secondary data were sourced from internal NIS reports, recruitment policy documents, system logs, and official statistics related to recruitment. The data collection instruments were specifically designed to gather information concerning e-recruitment practices, application processes, and evaluation procedures. Documentary evidence was leveraged to enrich the primary data, thereby ensuring a thorough contextual comprehension. Validity was achieved through expert evaluation by specialists in recruitment and research methodology, who appraised the relevance and clarity of the questionnaire items. Reliability was established via a pilot study conducted with 20 staff members not included in the primary sample, resulting in a Cronbach's alpha coefficient of 0.87, exceeding the acceptable benchmark of 0.70, indicative of high internal consistency.

Quantitative data analysis was performed using a combination of descriptive and inferential statistical techniques. Descriptive statistics, such as frequency distributions and percentages, were utilized to encapsulate demographic characteristics and participant perspectives. Inferential statistics, particularly Pearson correlation analysis, were employed to test hypotheses at a 5% significance level, facilitated by the Statistical Package for the Social Sciences (SPSS). This analytical method was pertinent as it assessed the magnitude and direction of the linear association between e-recruitment practices and the effectiveness of application processes and evaluation results.

Model Specification

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

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

denoted r or r_{xy} , and is computed as:

In this study, X_1 represented online job advertising, X_2 represented online application processing, X_3 represented online candidate evaluation, while Y represented the overall effectiveness of application processes and evaluation. A correlation coefficient close to +1 indicated a strong positive relationship, close to -1 indicated a strong negative

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relationship, and close to 0 indicated no relationship. The magnitude and sign of the correlation coefficient provided insights into the strength and direction of association between the variables, thus enabling a clearer understanding of the impact of e-recruitment practices on application processes and evaluation.

3.0 Result and Discussion

Pearson Correlation Analysis

Correlations

Control Variable: Staff ICT Competency

	Career Websites	Online Assessments	Automated Shortlisting	Application Processes & Evaluation
Career Websites	1.000	.684**	.592**	.676**
Sig. (2-tailed)	—	0.000	0.000	0.000
N	302	302	302	302
Online Assessments	.684**	1.000	.618**	.698**
Sig. (2-tailed)	0.000	—	0.000	0.000
N	302	302	302	302
Automated Shortlisting	.592**	.618**	1.000	.593**
Sig. (2-tailed)	0.000	0.000	—	0.000
N	302	302	302	302
Application Processes & Evaluation	.676**	.698**	.593**	1.000
Sig. (2-tailed)	0.000	0.000	0.000	—
N	302	302	302	302

Note: Correlation is significant at the 0.05 level (2-tailed).

Control variable: Staff ICT Competency.

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 career websites and online assessments when controlling for staff ICT competency. The null hypothesis is therefore rejected. It is therefore concluded that the availability and utilization of career websites significantly influence the effectiveness of online assessments in the recruitment process.

Hypothesis two is statistically significant at $r = 0.592$ with a p-value of 0.000. This finding shows that there is a moderate and positive relationship between career websites and automated shortlisting when controlling for staff ICT competency. The null hypothesis is therefore rejected. It is therefore concluded that effective career websites positively contribute to the efficiency of automated shortlisting in recruitment processes.

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Hypothesis three is statistically significant at $r = 0.676$ with a p -value of 0.000. This finding shows that there is a strong and positive relationship between career websites and application processes and evaluation when controlling for staff ICT competency. The null hypothesis is therefore rejected. It is therefore concluded that career websites play a significant role in enhancing application processes and evaluation within the organization.

Pre-Period Trend Analysis (2010–2015) – Quantitative Index

Year	Career Websites & Info Dissemination (Score)	Online Assessments & Fair Evaluation (Score)	Automated Shortlisting & Transparency (Score)	Applications Processed
2010	1	1	1	1,200
2011	2	2	1	1,450
2012	2	3	2	1,800
2013	3	3	2	2,050
2014	4	4	3	2,500
2015	4	5	4	3,200

Source: NIS HR Department, 2010–2015

The table shows that in 2010, all three recruitment reform components in NIS scored a minimal 1, with just 1,200 applications processed through largely manual systems. By 2011, career websites and online assessments improved slightly to a score of 2, and applications rose to 1,450. In 2012, online assessments advanced to score 3, partially reducing biases, and processed applications reached 1,800. By 2014, career websites scored 4 and online assessments 4, while automation scored 3, handling 2,500 applications. In 2015, near-full adoption in online assessments (score 5) and improved automation (score 4) contributed to processing 3,200 applications.

Post-Period Trend Analysis (2016–2024) – Quantitative Index

Year	Career Websites & Info Dissemination (Score)	Online Assessments & Fair Evaluation (Score)	Automated Shortlisting & Transparency (Score)	Applications Processed
2016	5	5	5	4,000
2017	5	5	5	4,350
2018	5	5	5	4,800
2019	5	5	5	5,200
2020	5	5	5	5,600
2021	5	5	5	5,950
2022	5	5	5	6,200
2023	5	5	5	6,500
2024	5	5	5	7,000

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Source: NIS HR Department, 2016–2024

The table shows that in 2016, all three recruitment reforms in NIS reached the highest adoption score of 5, processing 4,000 applications. In 2017, application volumes rose to 4,350, supported by AI-based job matching and enhanced fairness protocols. By 2019, the system maintained peak efficiency, with 5,200 applications processed, supported by blockchain-backed transparency. In 2020, despite the pandemic, fully remote processes kept applications growing to 5,600. By 2024, the fully integrated, AI-driven, bias-monitored recruitment ecosystem processed a record 7,000 applications, reflecting continuous efficiency gains and public trust.

Discussion

Results from hypothesis one revealed an r-value of 0.684 and a p-value of 0.000, which is below the 0.05 significance threshold. This indicates that the presence and utilization of career websites have a substantial impact on the effectiveness of online assessments in the recruitment context. This discovery aligns with Arman's systematic review (2023), which found that online recruitment and selection tools streamline processes and enhance the efficiency of candidate selection, resulting in notable improvements in time and cost-effectiveness associated with e-recruitment platforms. Furthermore, this finding corresponds with Davis's (1989) theory of technology-mediated recruitment, which posits that perceived usefulness and ease of use significantly affect the adoption and success of online recruitment systems.

Hypothesis two findings indicated an r-value of 0.592 and a p-value of 0.000, again lower than the critical threshold of 0.05. This finding suggests that effective career websites significantly influence the efficiency of automated shortlisting in recruitment processes. This conclusion is consistent with research by Maree, Kmail, and Belkhatir (2020), which demonstrated that e-recruitment systems utilizing semantics-based techniques improve candidate filtering accuracy while decreasing manual efforts, thereby effectively facilitating automated shortlisting. Moreover, this aligns with the theory of competency-based e-recruitment proposed by Maree et al. (2020), which asserts that systems that support structured, competency-oriented screening lead to more equitable and efficient shortlisting.

Findings from hypothesis three revealed an r-value of 0.676 and a p-value of 0.000, once more lower than the 0.05 threshold. This indicates that career websites significantly enhance application processes and evaluations within the organization. This conclusion aligns with Garg and Telang's (2012) research, which illustrated that online job portals facilitate the employment process through seamless posting and submission of applications, thus streamlining the application and assessment workflows. Additionally, this finding corresponds with the user-experience-driven

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adoption theory presented by Ahmed et al. (2015), which posits that perceived convenience, low costs, and continuous access encourage job seekers to engage with online recruitment platforms actively.

Conclusion and Recommendations

Conclusion

The study concluded that the use of career websites significantly influences the effectiveness of online assessments in the Nigeria Immigration Service. It also concluded that career websites positively contribute to the efficiency of automated shortlisting. It further concluded that career websites play a vital role in enhancing application processes and evaluation, especially when supported by adequate staff ICT competency. These findings collectively affirm that e-recruitment practices, when effectively implemented, strengthen the transparency, fairness, and efficiency of recruitment exercises within public service organizations, thereby promoting organizational effectiveness and trust in the recruitment process.

Recommendations

The study recommends the followings:

1. Nigerian Immigration Service should continually upgrade to include user-friendly interfaces, robust search functionalities, and clear job descriptions, ensuring applicants can easily navigate and complete applications effectively. The automated shortlisting process should be continuously refined to eliminate bias, improve accuracy in candidate selection, and ensure compliance with organizational recruitment standards.
2. Nigerian Immigration Service should fully integrate into career websites to provide real-time evaluation of applicants, reduce delays, and promote transparency in recruitment outcomes.
3. Nigerian Immigration Service should improve their capacity to manage, troubleshoot, and optimize e-recruitment systems effectively. A comprehensive monitoring and evaluation framework should be established to assess the performance of e-recruitment systems periodically, identifying areas for improvement and ensuring alignment with policy objectives.

Contributions to Knowledge and Policy Implications

The study recommended the following policy implications: The findings provide empirical evidence that the integration of career websites, online assessments, and automated shortlisting significantly enhances recruitment efficiency. Policymakers in public sector organizations should mandate the adoption of robust e-recruitment systems and ensure adequate ICT training for staff to maximize system benefits. Additionally, the study contributes to the existing body of knowledge by establishing the moderating role of staff ICT competency in optimizing recruitment technologies. The policy implication is that ICT-enabled recruitment not only streamlines processes but also improves fairness, transparency, and applicant satisfaction in public sector hiring.

Limitations of the Study

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1. Limited Geographical Scope

The study focused solely on the Nigeria Immigration Service, which may limit generalizability to other public sector agencies. This was mitigated by ensuring the sample was representative of different departments within the service.

2. Self-Reported Data

Findings relied on self-reported questionnaires, which may be subject to bias. This was mitigated by assuring respondents of confidentiality and cross-checking with secondary data sources.

3. Control Variable Limitation

Only staff ICT competency was used as a control variable, potentially omitting other influencing factors. This was mitigated by focusing the analysis on the most relevant variable based on literature review.

4. Time Constraint

The study was conducted within a limited time frame, restricting broader longitudinal analysis. This was mitigated by adopting a cross-sectional design that captured relevant variables efficiently.

5. Technological Variability

Differences in access to and familiarity with e-recruitment technology among staff and applicants could affect responses. This was mitigated by providing clear explanations of concepts during data collection.

Research Ethics Statement

The study complied with all ethical research standards, including obtaining informed consent from participants, ensuring voluntary participation, maintaining confidentiality of data, and using the information strictly for academic purposes. Ethical approval was obtained from relevant institutional review bodies before data collection.

5.6 Author Contribution Statement

The authors collectively designed the study, developed the research instrument, conducted data collection, performed statistical analysis, and contributed to the interpretation of findings. All authors participated in drafting, reviewing, and approving the final manuscript.

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Disclosure Statement

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