



# **A Comparative Analysis of Electronic Versus Manual Employment Application Processes in the Public Service: Evidence from Limpopo Province, South Africa**

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## **ABSTRACT**

This study compares the effectiveness, usability, and accessibility of electronic recruitment (e-recruitment) systems to manual application submission for jobs in the South African province of Limpopo's public sector. E-recruitment provides speed, automation, and a wider reach as digitalization continues to transform HR procedures. However, access to technology, digital literacy, and dependable infrastructure are necessary for such systems to function effectively. These requirements are not always fulfilled in low-income and rural areas like Limpopo. This study uses a mixed-methods research design, combining qualitative interviews with public service HR practitioners with quantitative data from secondary system records and applicant surveys. Results indicate that while the e-recruitment system greatly cuts down on processing time and enhances record management, about 36% of applicants face technical obstacles like poor user interface, lack of access to digital tools, or system outages. On the other hand, manual applications increase administrative overhead and delay processing, but they are more accessible to underserved populations. The study makes the case for a hybrid recruitment model that addresses the shortcomings in digital and infrastructure training while integrating both systems. The study provides practical suggestions for infrastructure improvement, training investment, and policy reform based on the Digital Divide Theory and the Technology Acceptance Model. It adds to the body of knowledge on innovation in the public sector and provides a case study for comparable areas going through administrative process digitalization. The findings inform provincial human resource policies aiming to balance technological efficiency with equitable access in public employment opportunities.

**Keywords** E-recruitment, Manual Applications, Public Service, Limpopo Province, Recruitment Efficiency

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## **1. Introduction and Background**

The public service's hiring practices have a significant impact on how responsive, representative, and high-quality government institutions are. Effective hiring guarantees that public organizations draw in and keep qualified workers who can maintain public confidence and provide services in an efficient manner (Khan, 2021). The adoption of e-recruitment platforms in South Africa is a component of a larger government initiative to modernize human resource management, boost administrative effectiveness, and encourage accountability and transparency in hiring procedures (Department of Public Service and Administration, 2020; Mwangi & Onyango, 2022).

Examining the real-world impacts of recruitment digitization is made possible by the province of Limpopo's diverse demographic and geographic makeup, which includes both urban centres and vast rural areas. The socioeconomic environment of the province affects the institutional ability to facilitate digital transformation as well as applicants' access to digital tools (Mabunda, 2021). Although e-recruitment systems offer advantages like automated record-keeping, real-time application tracking, and fair access to job openings (Nikolaou, 2021), their efficacy is largely dependent on dependable infrastructure, user digital literacy, and organizational preparedness (Mokgoko & Ndlovu, 2022).

Provincial implementation varies, even though national policies support digital service delivery and e-government (DPSA, 2022). The Office of the Premier (2022) draws attention to Limpopo's e-recruitment system's ongoing technical issues, poor user support, and infrastructure deficiencies. Socioeconomic factors, such as digital exclusion, which is particularly noticeable in rural areas with limited internet connectivity and device ownership, exacerbate these difficulties (Chikunda & Muroyiwa, 2022; Guthrie & Jung, 2023). On the other hand, manually submitting job applications is still a vital access point for digitally marginalized populations, despite the fact that it is frequently seen as antiquated and resource-intensive. Although processing speed and administrative efficiency are sacrificed, this approach maintains inclusivity for applicants without internet access or digital skills (Mahlangu, 2022; Nkosi, 2023). In order to balance efficiency and equity, prior research supports hybrid recruitment models that combine the advantages of manual and digital systems (Zuma & Nxumalo, 2023).

The purpose of this study is to look into how the public service in Limpopo uses both manual application procedures and e-recruitment. Comparing their effectiveness, evaluating accessibility for various demographic groups, and investigating stakeholder perceptions of the advantages and disadvantages of

each system are the goals. The study's ultimate goal is to provide evidence-based suggestions to aid in policy reform and direct digital innovation tactics in South Africa's public sector hiring environment.

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## 2. Literature Review

Due to the incorporation of digital technologies into human resource management, the recruitment landscape has experienced a substantial transformation on a global scale. Due to its effectiveness and affordability, e-recruitment, which is the use of internet-based technologies to recruit, screen, and hire candidates, has taken over as the primary strategy in many public and private sector organizations (Nikolaou, 2021). Research shows that by giving candidates real-time updates on the status of their applications, e-recruitment speeds up processing times, cuts down on paperwork, and improves transparency (Singh & Hess, 2020; Bersin, 2021).

Additionally, by making it possible to gather and analyse applicant data, e-recruitment facilitates data-driven decision-making, which can enhance candidate screening and lessen selection biases (Venkatesh & Davis, 2000). These advantages complement more general goals of public sector reform, like enhancing service delivery and encouraging accountability (Department of Public Service and Administration, 2020).

But putting e-recruitment systems into place is not without its difficulties, especially in developing nations. E-recruitment platforms' uptake and efficacy are greatly impacted by digital inequalities, which are characterized as differences in access to, proficiency with, and use of digital technologies (van Dijk, 2020; Guthrie & Jung, 2023). According to research conducted in African contexts, low-income and rural populations are disproportionately impacted by infrastructure constraints, such as inconsistent internet connectivity and a lack of reasonably priced data (Chikunda & Muroyiwa, 2022; Mabunda, 2021). These limitations worsen already-existing socioeconomic gaps and prevent fair access to e-recruitment.

These complexities are reflected in the hiring practices of the South African public sector. Provincial implementation differs, despite the government's emphasis on digital transformation through initiatives like the Public Service Digitalization Strategy (DPSA, 2022). According to the Office of the Premier (2022), Limpopo's e-recruitment system has poor support systems, little user training, and frequent technical malfunctions. The potential of the system is compromised by these operational difficulties, which also exacerbate user annoyance. In many public service contexts, manual recruitment techniques are still used as a necessary alternative, especially in settings where digital exclusion is common. Manual submissions continue to be essential for guaranteeing access for applicants who are digitally marginalized, despite criticism for their inefficiency and administrative burden (Mahlangu, 2022; Nkosi, 2023). Additionally, human error, delays, and a lack of transparency are common in manual processes, which can compromise recruitment fairness (Nkosi, 2023).

A practical way to strike a balance between efficiency and inclusivity may be provided by hybrid recruitment models, which combine manual application options with e-recruitment platforms (Zuma & Nxumalo, 2023). These models support a gradual transition without depriving vulnerable groups of their rights by promoting phased digital integration backed by infrastructure investments and capacity-building programs. Despite these realizations, there is still a dearth of empirical research comparing the effects of manual and e-recruitment systems in South African provinces such as Limpopo. By offering a context-specific examination of hiring procedures, difficulties, and results, this study fills this knowledge gap.

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## 3. Theoretical Framework

The Digital Divide Theory and the Technology Acceptance Model (TAM) are two interconnected theoretical frameworks that serve as the foundation for this investigation. Together, these models offer a conceptual framework for comprehending the sociostructural constraints and functional adoption of e-recruitment technologies within the public service of the province of Limpopo. According to Davis' (1989) Technology Acceptance Model (TAM), users' attitudes toward adopting a technology are influenced by two main beliefs: perceived usefulness (PU) and perceived ease of use (PEOU). Perceived usefulness in the context of e-recruitment refers to how much users think the system improves the efficiency and speed of job applications, whereas perceived ease of use refers to how simple it is to use the platform. This model is especially helpful in public institutions for determining the willingness of HR officers and job seekers to use e-recruitment platforms (Venkatesh & Davis, 2000). External elements that are relevant to comprehending the implementation of e-recruitment in Limpopo, such as system quality, user training, and institutional support, have also been incorporated into TAM extensions (King & He, 2022). However, the structural disparities that affect adoption and access are not sufficiently addressed by the TAM alone. Because of this, the study also makes use of the Digital Divide Theory (van Dijk, 2020), which looks at differences in access to digital technology, usage capacities, and the results that come from it. According to the theory, there are four levels of the digital divide: usage, skills, material, and motivational access. Each level influences how various demographic groups use digital services. Due to low broadband penetration, inadequate ICT infrastructure, and a large proportion of the population living in under-resourced rural areas, many Limpopo residents face limitations on many levels, particularly in the areas of skills and material access (Mabunda, 2021; Chikunda & Muroyiwa, 2022). When combined, TAM and the Digital Divide Theory offer a two-pronged analytical framework for analysing the e-recruitment system's technological capabilities as well as the larger socioeconomic disparities that influence its use. These frameworks aid in illuminating the reasons why many applicants still favour manual application procedures even in the face of a digital platform. They also provide information for the study's assessment of potential policy options, such as whether hybrid systems could be more effective at fulfilling the role of public recruitment in an environment where digital capacity is uneven.

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## 4. Methodology

A mixed-methods research design was used in this study to allow for a thorough comparison of the Limpopo public service's manual application and e-recruitment procedures. Both breadth and depth of analysis were made possible by the integration of quantitative and qualitative data, guaranteeing that stakeholder perceptions, operational efficiency, and accessibility were sufficiently investigated.

### Quantitative Component

200 job seekers who had applied for public service positions in the province of Limpopo in the previous 12 months were given structured questionnaires as part of the quantitative phase. The sample of respondents was deliberately chosen to represent differences in demographics like age and digital literacy, application method (e-recruitment or manual), and geographic location (rural vs. urban). The survey gauged how long it took to process their applications, how satisfied they were with the approach, and how difficult it was to get in. Comparative cross-tabulations and descriptive statistics were used to analyse the data from this component. To find trends in effectiveness and inclusivity, metrics like mean processing time and satisfaction levels were compared between the two groups. Respondents voluntarily and anonymously participated, and no personal information was gathered. To ensure inclusivity and prevent the digital exclusion the study itself sought to examine, the survey was conducted over the phone or using non-internet-based mobile tools for participants without internet access.

### Qualitative Component

15 human resource (HR) professionals from different departments of the provincial government of Limpopo participated in semi-structured interviews as part of the study to supplement the quantitative data. Due to their positions overseeing hiring procedures, these participants were specifically chosen. Their opinions on the effectiveness, openness, and difficulties of the manual application procedure as well as the e-recruitment system were investigated during the interviews. Perceptions of system dependability, the administrative load of each approach, the platforms' inclusivity, and suggestions for enhancing hiring procedures were the main topics of the interview questions. Without the use of recorded names or identifiers, the interviews were done over the phone or in person using audio notes. Participants were told that their answers would only be used for academic research, and complete anonymity and data confidentiality were guaranteed. The study was designed to adhere to regulations that do not require official ethical clearance because it did not involve the collection of sensitive personal data, direct observation, or vulnerable population groups.

### Use of Secondary Data

Anonymized secondary data were gathered from departmental recruitment logs, publicly available HR records, and system-generated reports in order to evaluate the actual processing times and frequency of technical issues related to each method. These documents contained data on the frequency of system outages, average response times, and application volumes. No personal information was accessed or handled during the quantitative and thematic analysis of the data.

While rigorously following ethical research procedures that avoid the need for formal ethical review, the study guaranteed data credibility and analytical validity by triangulating data from surveys, interviews, and administrative records.

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## 5. Results

The empirical results from the survey and interviews are shown in this section. Both e-recruitment and manual submission system users' application experiences were the subject of the quantitative data. Interviews with HR officers yielded qualitative data that gave the institution insight into operational difficulties, administrative effectiveness, and system functionality.

### 8.1 Quantitative Results

Two hundred job seekers in the province of Limpopo were given a survey. Processing time, satisfaction levels, and access difficulties were important metrics. Table 1 below provides a summary of the results:

**Table 1: Comparative Performance of E-Recruitment vs Manual Submission**

Measure	E-Recruitment System	Manual Submission
Average Processing Time (days)	14	28
Applicant Satisfaction (%)	72	58
Access Issues Reported (%)	36	10

According to the data, the average processing time for e-recruitment applications was 14 days, which is precisely half the time required for manual submissions, which take 28 days. Because of faster response times, automated confirmation emails, and a sense of procedural transparency, respondents who used the digital system expressed higher levels of satisfaction (72%) than those who did not.

However, 36% of e-recruitment users said they had trouble getting in. This included difficulty navigating the online interface, frequent system errors, a lack of digital literacy, and poor network connectivity in rural areas. Only 10% of manual applicants, on the other hand, mentioned access issues, the majority of which were logistical in nature and included things like lengthy lines or a lack of knowledge regarding due dates.

## 8.2 Qualitative Results

In order to contextualize the performance of both systems, interviews with fifteen HR officers involved in provincial recruitment were conducted. Most agreed that the e-recruitment system had increased internal efficiency, especially in the areas of document management and application tracking. Nonetheless, numerous structural and technical restrictions were regularly noted:

- **Dependence on a Central Server:** The system operates under a single server hosted by the Office of the Premier. HR officers cited frequent downtime and slow upload speeds during peak recruitment cycles.
- **Lack of Automatic Screening:** The current system lacks built-in screening functionality to shortlist or filter candidates based on pre-set criteria, placing the full burden of review on HR personnel.
- **Data Organisation Flaws:** Applications downloaded from the system often arrive in spreadsheets with **merged columns**, making it difficult to sort alphabetically or identify duplicate applications efficiently.
- **Limited Functionality:** There is no option to automatically alphabetise applications or perform basic database queries within the system.
- **Staff Capacity Issues:** Several departments have not trained HR officials on the system's use, leading to inconsistent practices and reliance on IT personnel for basic functions.

One HR officer remarked:

*"The e-recruitment system is not inherently flawed, it just hasn't been customised for the real administrative demands we face. And when the server is down, we have no backup."*

On the other hand, manual submission procedures were thought to be more inclusive, particularly for applicants from rural areas. The same HR officers did, however, point out some serious administrative shortcomings, such as duplicate documents, high physical storage requirements, longer turnaround times, and a higher chance of application misplacing. According to these results, the e-recruitment system improves speed and transparency, but it is not yet scaled, accessible in rural areas, or administratively agile enough.

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## 6.. Discussion

The findings of this study are in good agreement with previous research that emphasizes the effectiveness benefits of e-recruitment systems in public sector employment. E-recruitment in Limpopo Province greatly cuts application processing times and improves applicant satisfaction by offering quicker feedback and more procedural transparency, as Nikolaou (2021) has shown in global contexts. This demonstrates how digitization can enhance government hiring administrative workflows. Nonetheless, the study finds enduring obstacles to fair access, which is in line with the Digital Divide Theory (van Dijk, 2020). Systemic infrastructural and socioeconomic disparities, which disproportionately affect low-income and rural populations, are reflected in the significantly higher rate of access difficulties among e-recruitment users (36% versus 10% for manual applicants). These results highlight that, in order to prevent escalating social exclusion, technology adoption must be supported by focused investments in digital infrastructure and extensive digital literacy initiatives.

The fact that manual submission procedures are still a vital backup for applicants who are not able to use the digital system supports Mahlangu's (2022) findings that analogue methods are still required in settings with limited resources. This inclusivity does have a price, though, as there are still a lot of administrative red tape, more paperwork, and the possibility of mistakes or poor management.

This study supports a hybrid recruitment model that combines the accessibility of manual systems with the efficiency of digital platforms, in accordance with Zuma and Nxumalo's (2023) recommendations. While progressively developing digital infrastructure and competencies, such a model could meet the needs of a wide range of applicants.

The findings have important policy implications, one of which is the present over-reliance on a single e-recruitment system that is centrally managed by the Office of the Premier. A single point of failure is created by this centralization; any technical issues at this level prevent departments from accessing the entire provincial hiring process. Therefore, it is essential that every government agency in the province of Limpopo creates or implements an e-recruitment system that is customized for its unique operational environment. More customization, lower risk, and better responsiveness to regional issues are all possible with decentralized systems.

The study also emphasizes how crucial it is for HR staff to receive continual training and assistance in order to fully utilize e-recruitment technologies and remove any obstacles. Even technically sound systems may perform poorly in real-world scenarios if there is insufficient capacity-building. The findings collectively reaffirm that in order to achieve fair and effective hiring practices, digital transformation in public sector recruitment needs to be strategically managed with consideration for technological, social, and organizational aspects.

## 7. Conclusion

This study provides a thorough comparison of the manual employment application process and electronic recruitment, or e-recruitment, in the public sector of the province of Limpopo. According to the results, e-recruitment greatly improves procedural transparency and processing efficiency, which lowers application turnaround times and raises applicant satisfaction. However, enduring disparities in digital access and literacy, which disproportionately impact low-income and rural populations, limit the efficacy of the digital system. For people who are not able to use digital platforms, manual submission procedures remain an essential inclusive mechanism that allows them to apply for jobs in the public sector. However, this approach is linked to delays, higher resource requirements, and administrative inefficiencies.

Adopting a hybrid recruitment model that strikes a balance between the accessibility of manual methods and the operational benefits of digital platforms is supported by the evidence. To reduce the risks associated with an over-reliance on a centralised e-recruitment system, such an approach should be supplemented by strategic investments in digital literacy, infrastructure, and decentralised system development. Future research should focus on the longitudinal assessment of hybrid recruitment models, particularly their impact on employment equity, applicant experience, and service delivery quality in Limpopo and comparable regions. Additionally, studies could explore the organisational and technical adaptations required for scalable, sustainable digital recruitment in resource-constrained public sector settings.

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