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INFORMATION TECHNOLOGY UTILIZATION AND ITS IMPACT ON SERVICE EFFECTIVENESS IN WEST JAKARTA

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ABSTRACT
The rapid advancement of information technology has significantly influenced the public service sector, including immigration services. This study examines the effect of information technology utilization on service effectiveness at the West Jakarta Immigration Office, with a particular focus on the role of employees in optimizing the "Smart Immigration Service" system. Using a quantitative approach, data were collected from 120 immigration officers through structured questionnaires. The analysis was conducted using multiple linear regression to assess the relationship between technology adoption and key indicators of service effectiveness, including accuracy, speed, transparency, and user satisfaction. The findings indicate that effective utilization of information technology positively and significantly impacts service performance, enabling faster processing times, reduced errors, and improved accessibility for the public. Moreover, employees' digital competence plays a critical mediating role, ensuring that technological tools are applied optimally to meet service standards. This study highlights the strategic importance of continuous digital skills development for employees to sustain and enhance the quality of public services in the era of digital governance.

INTRODUCTION

The rapid advancement of information technology (IT) over the past decade has profoundly transformed various aspects of human life, including the public service sector. Digital transformation has become an inevitable global phenomenon, compelling government institutions to adapt to technological advancements to deliver services that are fast, accurate, transparent, and accountable. In Indonesia, the adoption of IT within government agencies aligns with the bureaucratic reform agenda and the implementation of e-government as stipulated in Presidential Instruction No. 3 of 2003. This policy aims to accelerate service processes, reduce operational costs, and enhance service quality, ultimately fostering greater public satisfaction (Wadesango et al., 2023).

One government agency that is directly affected by these developments is

the Directorate General of Immigration, particularly the West Jakarta Immigration Office, which faces increasing population mobility in the metropolitan area. The implementation of the Smart Immigration Service concept is expected to address these challenges by leveraging IT tools such as online registration applications, queue management systems, data integration across work units and agencies. Prior studies have demonstrated that such technological utilization can improve efficiency, productivity, and the overall quality of public services (Gatautis et al., 2013).

Beyond efficiency gains, IT adoption also brings additional benefits, including enhanced transparency and accountability through e-government practices, which reduce redundant work and promote citizen participation (Fajar Surya & Amalia, 2017). Moreover, IT facilitates better access to government information and services while reducing the costs and time required for service delivery, as evidenced by various international initiatives such as the Warana Project in India (Thadaboina, 2009).

Nonetheless, real-world implementation is not without challenges. Persistent obstacles include digital divides between regions and government entities, inadequate infrastructure and limited IT literacy (Fajar Surya & Amalia, 2017; Thadaboina, 2009), and organizational resistance to cultural change (Abdelhakim et al., 2022). In the immigration service context, these challenges are further compounded by insufficient continuous staff training and the need to safeguard sensitive data.

Key success factors for IT implementation include strong managerial support, active user involvement in system development, and comprehensive training programs to enhance employee competence (Abdelhakim et al., 2022). This is crucial given that immigration officers play a pivotal role as intermediaries between digital systems and the public; their ability to operate IT tools effectively and troubleshoot technical issues directly influences service effectiveness.

Empirical evidence from various contexts supports these observations. In Italy, public institutions with websites were found to operate more efficiently compared to those without (Guccio et al., 2021). In Papua, the implementation of e-government remains below ideal standards, highlighting a gap between technological potential and actual outcomes (Tonggiroh, 2017). In Uganda, an ICT platform enabling citizens to communicate anonymously with local officials improved educational service delivery in the short term, although its positive effects diminished over time (Grossman et al., 2018). In Indonesia, e-government services have a significant impact on transparency of public services (Pakpahan, 2024).

Drawing upon the Technology Acceptance Model (TAM) (Davis, 1989) and organizational effectiveness theory (Steers, 1975), it can be posited that employees' acceptance and utilization of IT have a direct impact on service effectiveness. Scholars such as Heeks (2006) argue that robust information system infrastructure is a critical foundation for successful e-government implementation, as stable and reliable systems are indispensable for optimal public service delivery (Heeks, 2006a). TAM further emphasizes that perceived ease of use and perceived usefulness strongly determine the acceptance and effective use of technology by both employees and the public (Davis, 1989). In line with this, Laudon and Laudon (2020) contend that IT serves as an enabler that accelerates administrative processes, enhances efficiency, and strengthens data integration across units, thereby reducing duplication and input errors. Service effectiveness indicators typically include speed, accuracy, procedural transparency,

and user satisfaction. Hence, an in-depth understanding of how employees utilize IT is essential to improving public service quality.

This study specifically examines the influence of IT utilization by employees on service effectiveness at the West Jakarta Immigration Office. The focus on employees is intentional, as they are the frontline actors directly operating IT systems and engaging with the public. Furthermore, a bibliometric analysis using VOSviewer of the public service effectiveness literature indicates that empirical studies examining IT utilization remain limited (see Figure 1), thus positioning this research to address a significant gap in the field.

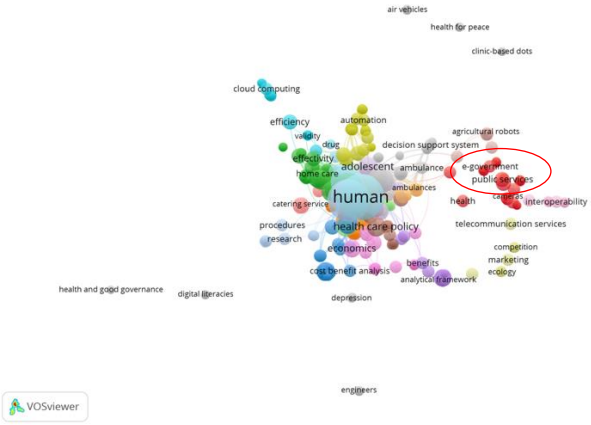

Figure 1. VOSviewer Mapping of Public Service Effectiveness Studies
Source: Vosviewer (Database from Scopus)

The novelty of this study lies in its analytical approach, which centers on employees as key actors in the successful implementation of information technology (IT), rather than solely focusing on service users or assessing the system from a purely technical perspective. By integrating the Technology Acceptance Model (TAM) and organizational effectiveness theory, this research proposes an analytical framework that connects technology acceptance dimensions with public service effectiveness indicators. Such an approach is expected to provide a scientific contribution that enriches the e-government literature while also serving as a practical reference for government agencies seeking to optimize their digitalization strategies.

The significance of this study stems from its dual contribution. First, from an academic perspective, it advances the understanding of the relationship between technology adoption and organizational effectiveness by emphasizing the role of employees as a pivotal variable. Second, from a practical perspective, it produces evidence-based findings that can serve as a foundation for policy development, training strategies, and IT infrastructure planning in the public sector. Thus, the findings are not only relevant to the academic literature but are also highly applicable for assisting governments in improving the quality, transparency, and accountability of public services, particularly in the field of immigration.

Accordingly, this study aims not only to test the causal relationship between IT utilization and service effectiveness but also to offer a fresh perspective on the strategic role of employees in the digital transformation of the public sector. The results are expected to serve as a basis for more effective decision-making in training program planning, infrastructure procurement, and digital policy formulation in the future.

METHOD

This study employs a quantitative research design to examine the impact of IT utilization on service effectiveness at the Class I Special Non-TPI (Non-Immigration Checkpoint) West Jakarta Immigration Office. A quantitative approach was chosen because it enables objective measurement of relationships among variables through statistical techniques, allowing the results to be tested and replicated (Creswell, 2014). The research adopts an explanatory design aimed at testing hypotheses regarding the effect of the independent variable (X)—IT utilization—on the dependent variable

(Y)—service effectiveness. This design is appropriate for identifying causal relationships and the magnitude of influence among constructs (Neuman, 2014). Furthermore, an explanatory design provides a deeper level of analysis compared to a descriptive survey, as it goes beyond mere description to test inter-variable relationships and effects (Singarimbun & Effendi, 1995).

The population of this study consists of employees working at the Class I Special Non-TPI West Jakarta Immigration Office. The sampling technique used is purposive sampling, applying specific criteria, namely respondents who have utilized or operated IT-based service systems. The minimum sample size was determined using Slovin's formula to ensure adequate statistical power (Etikan et al., 2016). Based on this calculation, the study utilized a sample of 120 respondents.

Data were collected using a structured questionnaire adapted from previous research instruments on IT utilization and service effectiveness (Davis, 1989; Parasuraman et al., 1988). The questionnaire employed a five-point Likert scale ranging from "strongly disagree" to "strongly agree" to capture respondents' perceptions. Prior to distribution, the instrument underwent content validity assessment through a pilot test to ensure clarity and reliability. Data analysis was conducted using IBM SPSS Statistics 23.

The data analysis procedure comprised several stages. First, descriptive statistical analysis was performed to describe the demographic profile of respondents and the distribution of research variables. Second, reliability testing was conducted using Cronbach's alpha to assess internal consistency, while construct validity was examined using factor analysis (Hair et al., 2019). Third, hypothesis testing was carried out through multiple linear regression analysis to evaluate the influence of IT utilization on service effectiveness, as this method is suitable for analyzing linear relationships among variables. Fourth, classical assumption tests—including normality, multicollinearity, and heteroskedasticity tests—were conducted to ensure the validity of the regression model.

Finally, this study acknowledges certain limitations. First, the use of a self-administered survey may introduce perception bias since the data rely on self-reported responses. Second, the research scope is limited to the Class I Special Non-TPI West Jakarta Immigration Office, meaning the findings cannot be generalized to other immigration offices with different contextual conditions. Nonetheless, these limitations do not diminish the study's relevance, as it provides valuable empirical insights into the impact of IT utilization on public service effectiveness, particularly in high-demand service environments.

FINDINGS

This study examines the impact of information technology (IT) utilization on service effectiveness within the Class I Special Non-TPI (Non-Immigration Checkpoint) West Jakarta Immigration Office. The total number of respondents is 120 employees, selected based on the following criteria: (1) working in a government ministry environment, (2) using IT in their daily tasks, and (3) directly engaged in public service delivery. The research instrument consisted of a 5-point Likert-scale questionnaire, distributed both physically and via an online form.

Based on demographic data, among the 120 respondents, most are aged 31–40 years (45%), followed by those aged 41–50 (32%), ≤30 years (18%), and >50 years (5%). This age distribution reflects that most employees fall within the productive age range, where adaptability to technological changes and workload management are

typically optimal. However, the presence of respondents aged ≤30 years and >50 years also adds valuable variation in terms of digital skills and work experience. Younger employees may bring higher adaptability and familiarity with new IT platforms, while older employees often contribute institutional knowledge and a deeper understanding of bureaucratic processes. This diversity allows for an analysis of how different age groups perceive and utilize IT, which could have implications for designing tailored digital training and change management programs.

In terms of gender, 65% of respondents are male, and 35% are female, indicating that the workplace environment sampled is still predominantly male. This gender composition reflects broader trends in government institutions where male employees often dominate operational and technical units. Nonetheless, the significant proportion of female employees (more than one-third) shows that women are actively participating in IT-based public service delivery. Exploring gender-based perspectives on IT adoption can also shed light on potential gaps in access to digital tools, training opportunities, and work-life balance considerations. Previous studies have suggested that gender differences can influence how employees engage with digital platforms and perceive technological changes, which makes the demographic breakdown particularly relevant in the context of this research.

Table 1. Descriptive Analysis Result

Variable Name	Average Score (%)	Category
IT Utilization (X)	84.3%	Very High
Service Effectiveness (Y)	83.7%	Very High

Source: Processed Research Data, 2025

Table 1 presents respondents' perceptions of the two main research variables. The findings indicate that employees perceive IT utilization as being in the "very high" category, suggesting that IT has been well integrated into work processes. Service effectiveness is also rated "very high," reflecting that services are perceived as fast, accurate, and satisfactory.

Further, Pearson's correlation analysis reveals a correlation coefficient (r) of 0.850 between IT utilization and service effectiveness, with a p-value < 0.001. This demonstrates a strong, positive, and statistically significant relationship between the two variables. In other words, an increase in IT utilization within work processes is associated with an increase in public service effectiveness. This positive correlation aligns with theoretical perspectives asserting that effective technology adoption accelerates workflows, improves accuracy, and minimizes service delivery errors.

The coefficient of determination (R^2) is 0.722, indicating that 72.2% of the variance in service effectiveness is explained by IT utilization, while the remaining 27.8% is influenced by other factors outside the model, such as human resource competencies, organizational policies, and supporting infrastructure. The high R^2 suggests that IT utilization is a dominant factor affecting service effectiveness within the ministry context.

Table 2. Coefficient of Determination Test Results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.850	0.722	0.716	0.247

Source: Processed Research Data, 2025

Multiple linear regression analysis involving five IT utilization indicators (X1–X5) produced a model with positive regression coefficients across all indicators. The regression equation is as follows:

$$Y=a+b1X1+b2X2+b3X3+b4X4+b5X5$$

The constant value of 5.214 demonstrates the baseline level of service effectiveness that exists even when all IT utilization indicators are at zero, which can

be attributed to conventional administrative procedures and human-driven workflows. However, the positive and statistically significant coefficients across all five IT indicators highlight the substantial role that digitalization plays in enhancing public service outcomes. Notably, Information Security (X5) has the largest impact on service effectiveness (β = 1.215, t = 5.367, p < 0.001), followed closely by Data Access Speed (X3) (β = 1.102, t = 5.014, p < 0.001). These findings indicate that seamless integration of systems across different units and the ability to retrieve and process information rapidly are critical drivers of organizational performance. When systems are integrated effectively, data silos are minimized, processes become more synchronized, and staff can collaborate more efficiently. Likewise, faster access to data enables employees to provide timely services to the public, reducing waiting times and improving user satisfaction.

Beyond these primary factors, other indicators such as software availability (X1), system user-friendliness (X2), and data integration (X4) also exhibit positive and significant effects (p < 0.05), albeit with comparatively smaller coefficients. This suggests that while integration and data speed form the backbone of effective IT-enabled services, supporting elements in the technological infrastructure remain essential. Adequate and up-to-date software ensures employees have the proper tools to execute tasks efficiently; a reliable network prevents workflow interruptions that could undermine service delivery; and user-friendly system interfaces reduce errors and learning curves, thereby fostering greater adoption of technology by employees. Taken together, these results underline the importance of a comprehensive IT strategy that not only prioritizes major structural improvements like integration but also supports operational continuity through accessible, reliable, and intuitive technological resources.

Table 3. Multiple Linear Regression Results

Variabel / Indikator (X)	Koefisien (β)	t hitung	p-value	Keterangan
Konstanta	5,214	–	–	–
X1 – Ketersediaan Sistem	0,842	4,123	0,000	Signifikan
X2 – Kemudahan Penggunaan	0,693	3,857	0,000	Signifikan
X3 – Kecepatan Proses Layanan	1,102	5,014	0,000	Signifikan (Dominan)
X4 – Integrasi Data Antar Unit	0,625	3,542	0,001	Signifikan
X5 – Keamanan Informasi	1,215	5,367	0,000	Signifikan (Dominan)

Source: Processed Research Data, 2025

Partial t-tests indicate that all IT utilization indicators have t-values exceeding the critical value (≈1.98 at α = 0.05) with p-values < 0.05. Thus, each indicator significantly affects service effectiveness on a partial basis. Simultaneous F-tests further confirm the model's robustness, with an F-value of 150.35 exceeding the critical F-value of 3.92 (p < 0.001), indicating that all IT utilization indicators collectively have a significant impact on public service effectiveness.

DISCUSSION

The study demonstrates that IT utilization (X) has a strong and statistically significant relationship with public service effectiveness (Y) at the West Jakarta Immigration Office, as indicated by the correlation coefficient of 0.850 (p < 0.001) and an R^2 of 0.722. This implies that 72.2% of variations in service effectiveness can be explained by IT utilization, with the remainder influenced by other factors. This finding underscores the strategic role of technology as not merely a supporting tool, but as a critical driver of organizational performance within the public sector. In public service contexts characterized by high demand and complex processes, IT provides leverage for overcoming bureaucratic inefficiencies and delivering services more effectively to the public.

These findings reinforce the concept of public administration as articulated by Denhardt & Denhardt (2015), which views public administration as a process of managing public organizations to achieve

state objectives and serve public interests. Within this research context, IT utilization functions as a strategic instrument for improving the quality and speed of public service delivery, consistent with Law No. 25/2009 on Public Services. By enabling faster, more accurate, and transparent processes, IT supports the state's mandate to ensure citizen satisfaction and equitable access to services. Service effectiveness was measured using five indicators—service quality, timeliness, accessibility, citizen satisfaction, and organizational target achievement—all of which improved alongside IT optimization. Each of these dimensions is closely tied to how technology facilitates process improvements: better quality results from standardized systems; timeliness improves through automation; accessibility is supported by online platforms; citizen satisfaction increases with transparency and reliability; and organizational target achievement benefits from real-time performance monitoring.

From the IT perspective, the study highlights that IT encompasses systems, infrastructure, and tools used to manage data and facilitate service delivery. At the West Jakarta Immigration Office, IT adoption is manifested through an online queuing system, the Molina application for visa processing, biometric data integration, and web/mobile-based online services. Each of these platforms plays a unique role: the online queuing system reduces physical congestion and waiting times; Molina simplifies and accelerates visa processing; biometric integration enhances verification and security, while web and mobile platforms expand service reach. Regression analysis identified that system integration and processing speed are the primary determinants of service effectiveness. These findings are consistent with Heeks (2006), who emphasized that system integration and process efficiency are key success factors in e-government implementation (Heeks, 2006b). Heeks' theory of the "design–reality gap" suggests that failure in digital government projects often arises from misalignment between technological design and organizational capacity. In the case of the West Jakarta Immigration Office, the high correlation and explanatory power of IT utilization indicate that such gaps have been effectively minimized, allowing IT systems to complement organizational workflows.

The relationship is also well-explained through the Technology Acceptance Model (TAM) (Davis, 1989), which posits that IT acceptance is determined by perceived usefulness and perceived ease of use. Employees in this study scored highly on both dimensions, indicating not only acceptance but also effective utilization of IT in their work processes. This has a direct impact on improving public service effectiveness indicators, particularly timeliness, accessibility, and citizen satisfaction. When employees perceive IT systems as beneficial and easy to operate, they are more likely to integrate them into daily workflows. This reflects a broader pattern seen in digital government initiatives worldwide: employee buy-in is critical for successful implementation. The findings thus confirm that beyond infrastructure investment, organizational strategies must focus on fostering user engagement and competency.

Empirically, the study confirms that IT adoption in the public sector can shorten service completion times, improve data accuracy, reduce operational costs, facilitate monitoring and evaluation, and enhance citizen satisfaction. For example, the digitalization of queuing and registration processes reduces administrative bottlenecks and reallocates human resources to more complex tasks requiring discretion and judgment. At the West Jakarta Immigration Office, IT adoption has successfully reduced physical queues

through online registration, accelerated verification via biometric systems, and provided real-time service information to the public. Such outcomes align with global trends where digital government strategies are implemented not only to increase efficiency but also to enhance public trust. Transparency and real-time updates improve accountability, while biometric verification increases data integrity and reduces the risk of fraud.

Despite high levels of IT utilization and service effectiveness (84.3% and 83.7%, respectively), there remains 27.8% room for improvement. Challenges identified include limited employee digital literacy regarding new system features, resistance among some employees toward digital transitions, and the need to strengthen data security to protect citizens' personal information. These barriers illustrate that technological transformation is not merely a technical project but also an organizational change initiative. Resistance to change often stems from fear of obsolescence or discomfort with unfamiliar systems; addressing this requires structured training, change management programs, and incentives for adoption. Furthermore, digital literacy extends beyond basic system operation; it involves an understanding of cybersecurity, data ethics, and the ability to troubleshoot or adapt to evolving technologies. The need to strengthen data security is particularly urgent given increasing concerns about privacy and cyber threats in digital public service ecosystems.

Based on the research indicators, several strategic recommendations can be proposed for accelerating public service delivery at the West Jakarta Immigration Office:

a. *Enhance system availability*: Expand digital services to cover all types of immigration applications, including emergency and priority services.
b. *Improve user-friendliness*: Design intuitive and user-friendly application interfaces compatible with multiple devices.
c. *Optimize service speed:* Upgrade network infrastructure and hardware to minimize processing time.
d. *Strengthen data integration*: Link all work units and national databases to reduce duplication and data errors.
e. *Increase information security*: Implement encryption, two-factor authentication, and regular system audits to ensure data confidentiality.
f. *Evaluate service quality*: Conduct regular citizen satisfaction surveys to identify areas for improvement.
g. *Improve service accessibility*: Expand digital service channels and provide digital literacy education for the public

By implementing these strategies, the West Jakarta Immigration Office has the potential to become a national role model for effective, efficient, and citizen-oriented digital public service delivery. Optimizing IT utilization—aligned with public administration theory—will further strengthen the efficiency, effectiveness, transparency, and accountability dimensions of public service delivery in the digital era. These recommendations are not only technical but also managerial, as they require alignment between leadership commitment, resource allocation, and continuous performance evaluation. The transition toward a fully digital public service ecosystem is iterative; continuous feedback from citizens and employees is crucial to ensure systems remain responsive and relevant.

Comparative insights from other regions and sectors reinforce the

generalizability of these findings. For instance, similar patterns of IT-driven service improvement have been reported in other Indonesian government agencies, such as the Population and Civil Registry Offices in Surabaya and Makassar, where the implementation of online queuing systems and data integration significantly reduced service waiting times and administrative errors (Wibowo, 2022). Cross-sector comparisons also reveal consistent outcomes, studies on digital health services in Malaysia (Abdelhakim et al., 2022) and e-procurement systems in Zimbabwe (Wadesango et al., 2023) show that the adoption of information technology accelerates service delivery, enhances transparency, and fosters public trust. These parallels suggest that the positive relationship between IT utilization and service effectiveness observed at the West Jakarta Immigration Office reflects a broader trend of digital transformation across public sectors in developing countries, thereby strengthening the generalizability of the present study's conclusions.

Beyond the immediate context, this study contributes to the broader literature on e-government and digital public administration by providing empirical evidence of the strong association between IT utilization and service outcomes. The West Jakarta Immigration Office serves as a microcosm for understanding how public organizations in developing countries can leverage technology for transformative change. The high explanatory power (R^2 of 0.722) suggests that investments in IT yield substantial returns in terms of service effectiveness. However, the unexplained variance also signals the need for future studies to examine other determinants, such as organizational culture, leadership style, policy support, and citizen digital readiness. These factors interact with technology adoption and may either enhance or hinder the realization of its potential benefits.

Furthermore, the study highlights the importance of integrating IT strategies with human capital development. Technology by itself does not automatically improve service; it must be accompanied by workforce training, adaptive management, and organizational learning. This resonates with the dynamic capabilities framework, which emphasizes that organizations must continuously build, integrate, and reconfigure internal and external competences to address rapidly changing environments. In the case of the West Jakarta Immigration Office, future research could explore how leadership agility and organizational culture interact with IT utilization to drive sustained performance improvements.

CONCLUSION

This study highlights that the utilization of information technology significantly enhances service effectiveness in the West Jakarta Immigration Office. By integrating the Technology Acceptance Model (TAM) with organizational effectiveness theory, the research emphasizes the critical role of employees as strategic actors in digital transformation, beyond the conventional focus on system users or technical assessments. The findings confirm that effective technology adoption by employees positively influences service quality, transparency, and accountability, reinforcing the value of digital innovation in public sector institutions.

The study's novelty lies in its analytical focus on employees' perspectives as the primary determinants of successful IT implementation. Rather than solely evaluating end-user satisfaction or technical performance, this research provides a broader understanding of how employees' acceptance and engagement with digital tools shape organizational outcomes. This dual contribution enriches e-government literature and offers practical implications

for policymakers, particularly in developing strategies for training, IT infrastructure planning, and performance evaluation.

Moreover, the study provides actionable insights for government agencies aiming to optimize their digital service strategies. By demonstrating the causal link between IT adoption and service effectiveness, the findings support evidence-based decision-making to improve immigration service delivery. While the research scope is limited to one immigration office, its implications are relevant to similar high-demand public service environments.

Based on the findings, several practical recommendations can be implemented by public institutions to optimize IT utilization and improve service effectiveness. First, policymakers should prioritize continuous training and capacity building for employees to ensure they can adapt to new digital tools effectively. Enhancing digital literacy and change management programs will help reduce resistance and increase acceptance among staff members. Furthermore, investment in IT infrastructure, such as network upgrades and system integration, is essential to improve service speed, reliability, and security. Public institutions should also establish clear monitoring and evaluation frameworks, using citizen satisfaction surveys and real-time performance analytics, to ensure accountability and continuous improvement. By implementing these measures, immigration offices and other public agencies can strengthen transparency, responsiveness, and overall service delivery aligned with modern e-government standards.

For future studies, expanding the research scope beyond a single immigration office will enhance the generalizability of findings and provide a more comprehensive understanding of IT adoption in the public sector. Comparative studies across different regions or agencies can reveal how socio-economic, cultural, and institutional factors influence digital service effectiveness. Employing a mixed-methods approach—integrating quantitative surveys with qualitative interviews and ethnographic observations—can capture deeper insights into organizational culture, employee resistance, and leadership roles in digital transformation. Longitudinal research would also be valuable to observe how IT adoption evolves over time and how sustained digital initiatives affect performance and citizen satisfaction in the long run. Such studies could further explore emerging technologies like artificial intelligence and blockchain to assess their potential contributions to future public service innovations.

From a policy perspective, the Directorate General of Immigration could formulate a comprehensive Digital Service Governance Framework that standardizes IT utilization across all immigration offices nationwide. This framework should encompass unified digital platforms, integrated databases, and centralized data protection protocols to ensure consistency, transparency, and data security. Furthermore, the Directorate General of Immigration should establish a continuous Digital Competency Development Program for immigration officers, focusing on adaptive digital skills, cybersecurity awareness, and service innovation. By institutionalizing these policies, they can enhance nationwide service quality, minimize regional disparities in IT adoption, and strengthen public trust in Indonesia's immigration services.

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