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Building public value in hybrid e-government services: lessons from Indonesian passport service delivery

Rasona Sunara Akbar¹, Triyuni Soemartono², Pandji Sukmana², T. Herry Rachmatsyah²

¹Politeknik Imigrasi dan Pemasarakatan Indonesia

²Universitas Prof. Dr. Moestopo (Beragama), Indonesia

Corresponding Author: Rasona Sunara Akbar; Email: rasona@poltekim.ac.id

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ABSTRACT

The digitalization of travel documents through the M-Paspor application has transformed Indonesian immigration administration. However, the hybrid nature of passport services, which combines digital registration with face-to-face verification, requires an evaluation that goes beyond technical performance toward substantive public value creation. This descriptive-exploratory qualitative study analyzes how information quality, system quality, and face-to-face service quality interact with user satisfaction to shape public value in travel document services across five Immigration Offices in Jakarta. Informants were selected purposively and consisted of 20 participants, including immigration policymakers, frontline officers, and citizen users. Data were collected through in-depth interviews, structured observations, and document review, and were analyzed using the interactive model of Miles, Huberman, and Saldaña. The findings show that accurate information and reliable systems provide administrative certainty, but public value is weakened when upload instructions, quota information, and server performance are inconsistent. In hybrid service delivery, responsive and empathetic frontline officers function as a corrective layer that converts technical convenience into satisfaction, trust, compliance legitimacy, and operational capacity. The study concludes that public value in digital immigration services is produced through the integration of reliable digital infrastructure and human-centered service quality.

INTRODUCTION

Public service is a fundamental manifestation of the state's function in fulfilling the constitutional rights of its citizens. In modern public administration, the adoption of Information and Communication Technology (ICT) within the framework of e-government is no longer optional; rather, it has become a strategic instrument for transforming governance into a more transparent, accountable, accessible, and efficient system (Batool et al., 2021; Heeks, 2012; Homburg, 2017). E-government is also widely understood as a mechanism for improving service delivery, managerial effectiveness, citizen access, and public sector responsiveness through the integration of digital technologies into government processes (Indrajit, 2006; Reddick & Frank, 2007; Saxena, 2005; Snellen, 2009).

In Indonesia, the commitment to digitalization was institutionalized through Presidential Regulation No. 95 of 2018 concerning the Electronic-Based Government System (SPBE). A crucial Government-to-Citizen (G2C) implementation under this mandate is the digitalization of Indonesian travel document services through the M-Paspor platform, managed by the Directorate General of Immigration. The G2C model emphasizes the direct interaction between government institutions and citizens through digital channels, where public service accessibility, usability, and trust become critical determinants of successful adoption (Carter & Bélanger, 2005; Layne & Lee, 2001; Manaf & Man, 2021). Nevertheless, travel document services possess a unique characteristic: they are hybrid. Applicants use the digital platform for registration

and document uploading, but they are still required to appear physically at the Immigration Office for document verification, biometric data capture, and face-to-face interviews. This hybrid arrangement reflects the broader challenge of digital public service transformation, in which technological innovation must still be supported by institutional readiness, user-centered design, and inclusive access to public services (Agrawal et al., 2022; Concilio et al., 2022; Scupola & Mergel, 2022).

This hybrid structure creates a service paradox. On the one hand, digital system integration has advanced Indonesia's position in the United Nations E-Government Survey, rising to 64th place in 2024 (United Nations, 2024). On the other hand, empirical data reveal a sharp digital divide, with 70 million citizens still lacking stable internet access, alongside high cybersecurity threats, with 100 million cyberattacks recorded through April 2022. Both conditions can erode public trust in digital government platforms. Prior studies show that trust, perceived risk, system security, and digital access are central factors influencing citizens' willingness to adopt and continue using e-government services (Bélanger & Carter, 2008; Choeje et al., 2015; Pribadi et al., 2021; Teo et al., 2008). In addition, obstacles such as infrastructure limitations, uneven digital literacy, system instability, and cybersecurity vulnerability remain persistent challenges in e-government implementation, particularly in developing-country contexts (Alshehri & Drew, 2012; Dash & Pani, 2016; Qader & Kheder, 2016).

Most prior literature evaluates e-government success using rigid quantitative models, such as DeLone and McLean's Information Systems Success Model or SERVQUAL in isolation, focusing narrowly on technical system performance or individual customer satisfaction. This study addresses this research gap by integrating DeLone and McLean's dimensions of Information Quality and System Quality with Parasuraman's SERVQUAL dimensions of Face-to-Face Service Quality to comprehensively examine Mark Moore's concept of Public Value through a qualitative lens. The primary focus of this study is the regional jurisdiction of the Jakarta Immigration Regional Office, which represents the highest service volume and the most complex user heterogeneity in Indonesia. The integration of information system success, service quality, satisfaction, and public

value is important because e-government performance should not only be measured by technological functionality, but also by its contribution to citizen trust, institutional legitimacy, and broader social outcomes (Deng et al., 2018; Karunasena & Deng, 2012; Omar et al., 2011; Twizeyimana & Andersson, 2019).

DeLone and McLean's Information Systems Success Model asserts that e-government effectiveness is driven by Information Quality, including accuracy, currency, and completeness, as well as System Quality, including ease of use, response time, and security (DeLone & McLean, 2003, 2016). However, given the hybrid nature of immigration services, the SERVQUAL dimensions established by Parasuraman and Berry, namely reliability, responsiveness, assurance, empathy, and tangibles, serve as essential prerequisites for assessing direct physical interactions between applicants and immigration officers (Parasuraman & Berry, 1991). In digital public services, these dimensions remain relevant because citizens evaluate service quality not only through the performance of an application or website, but also through the responsiveness, credibility, and helpfulness of the institution delivering the service (Keco et al., 2023; Nguyen, 2014; Papadomichelaki & Mentzas, 2012; Pham et al., 2023).

Drawing from Expectancy-Disconfirmation Theory (EDT), user satisfaction is understood as an evaluative function that compares initial expectations with actual perceived performance (Oliver, 1976). In the public sector, ultimate success is not measured by financial profit, but by the creation of Public Value. According to Mark Moore, public value refers to the capacity of government action to generate outcomes that are collectively valuable, legitimate, and operationally feasible (Moore, 2021). This perspective is consistent with broader public value scholarship, which emphasizes that public sector performance must be assessed through citizen benefits, institutional trust, service effectiveness, and the achievement of democratic and administrative goals (Jørgensen & Bozeman, 2007; Mensah et al., 2022; Twizeyimana & Andersson, 2019). In this study, public value manifests in three core dimensions. The first is Public Service Outcomes, which refers to the overall effectiveness and ease of fulfilling passport requirements. The second is Legitimacy

and Public Support, which refers to the reinforcement of institutional trust and citizen compliance with state regulations. The third is Operational Capacity, which refers to the efficiency of resource allocation, the reduction of bureaucratic red tape, and the precision of national security biometrics.

To guide this qualitative inquiry in lieu of statistical hypotheses, three conceptual propositions were formulated. First, digital information quality and M-Paspor system reliability establish initial administrative certainty; however, the quality of human-to-human interaction, as reflected in SERVQUAL, during physical interviews remains the primary determinant in converting satisfaction into substantive public value. This proposition is supported by studies showing that both technological performance and service process quality shape satisfaction and perceived value in e-government services (Chan et al., 2021; DeLone & McLean, 2016; Papadomichelaki & Mentzas, 2012; Sachan et al., 2018). Second, user satisfaction does not merely serve as a short-term transactional output; rather, it acts as an emotional catalyst that reinforces the relationship between digital public service quality and institutional legitimacy, particularly trust. Prior research has similarly demonstrated that satisfaction, perceived value, and trust are closely linked in determining citizens' continued acceptance of e-government services (Bélanger & Carter, 2008; Desmal et al., 2022; Fathya et al., 2023; Pham et al., 2023). Third, operational hurdles, such as societal digital literacy gaps and systemic server outages, directly diminish the public's perception of the operational capacity of immigration services. This proposition reflects broader findings that infrastructure limitations, cybersecurity risks, accessibility barriers, and system instability can weaken e-government performance and reduce citizens' confidence in digital public services (Agrawal et al., 2022; Alshehri & Drew, 2012; Choeje et al., 2015; Dash & Pani, 2016).

METHODS

Research design

This study employed a descriptive-exploratory qualitative research design. This design was selected because the study aimed to understand meanings, perceptions, service experiences, and

public value formation in the implementation of hybrid e-government passport services rather than to test statistical relationships. In digital public administration, qualitative inquiry is appropriate because e-government implementation involves not only technical system performance but also trust, institutional readiness, accessibility, user satisfaction, and the social meaning of public service transformation (Heeks, 2012; Homburg, 2017; Snellen, 2009).

The research was conducted at five main Immigration Offices, or Kantor Imigrasi (Kanim), under the Regional Office of the Ministry of Law and Human Rights in the Special Capital Region of Jakarta: South Jakarta, West Jakarta, East Jakarta, North Jakarta, and Central Jakarta. These sites were selected because they represent high-volume urban passport service environments with diverse users and direct implementation of the M-Paspor system. The multi-site setting also enabled the study to observe variations in service capacity, digital infrastructure readiness, and the interaction between online procedures and face-to-face service encounters (Agrawal et al., 2022; Alshehri & Drew, 2012; Saxena, 2005).

Informant selection

Informants were selected through purposive sampling. This technique was used to ensure that the data were obtained from actors who had direct experience, institutional knowledge, or practical involvement in the implementation of M-Paspor and passport service delivery. Data collection was concluded after reaching saturation, when additional interviews no longer produced substantially new themes. A total of 20 informants participated in this study.

The first category consisted of management officials and policymakers, coded as INF-PM. This group included Heads of Immigration Offices and Heads of Immigration Traffic Sections. Five informants were selected from this category because they possess strategic knowledge of institutional policy, system constraints, service evaluation mechanisms, and the direction of immigration service digitalization. Their perspectives were important for understanding how organizational strategy and managerial capacity influence e-government service implementation (Reddick & Frank, 2007; Snellen, 2009).

The second category consisted of frontline service officers, coded as INF-PL. This group included interview officers, document verifiers, and biometric technicians. Five informants were selected because they interact directly with both the M-Paspor system and passport applicants. Their perspectives were essential for understanding the operational link between digital procedures and physical service encounters, particularly the role of responsiveness, assurance, and empathy in hybrid public services (Keco et al., 2023; Parasuraman & Berry, 1991; Papadomichelaki & Mentzas, 2012).

The third category consisted of citizen users, coded as INF-MS. This group included ten M-Paspor applicants with variations in age, digital literacy, and application purpose. The inclusion of applicants with different levels of digital capability was intended to capture diverse user experiences regarding usability, accessibility, information clarity, administrative certainty, and satisfaction. Such diversity is important because perceived usefulness, trust, accessibility, and mobile readiness significantly shape citizens' experiences with e-government services (Agrawal et al., 2022; Bélanger & Carter, 2008; Carter & Bélanger, 2005; Desmal et al., 2022).

Data collection

Primary data were collected through in-depth interviews, structured observations, and documentation. Semi-structured interviews were conducted to explore informants' expectations, cybersecurity concerns, perceptions of system usability, experiences with service procedures, and satisfaction with both the M-Paspor platform and face-to-face immigration services. The use of semi-structured interviews enabled the researcher to obtain comparable information while still allowing informants to explain their experiences in depth. This was relevant because user satisfaction in digital public services is commonly shaped by the gap between expected and perceived performance, as well as by trust, risk perception, service value, and system reliability (Bélanger & Carter, 2008; Oliver, 1976; Sachan et al., 2018; Teo et al., 2008).

Structured observations were conducted in the service areas of the five Immigration Offices. The observations focused on application response time, queue conditions, staff responsiveness, staff empathy, help desk practices, physical service flow, and visible digital infrastructure limitations.

Observation was necessary because hybrid e-government services are experienced through both digital and physical channels. Applicants interact not only with an application, but also with procedures, facilities, officers, and institutional service culture (Nguyen, 2014; Papadomichelaki & Mentzas, 2012; Pham et al., 2023).

Documentation was used to collect supporting data. The documents reviewed included annual reports, public complaints submitted through official immigration social media channels, and technical error logs related to the M-Paspor system. These documents were used to triangulate interview and observation findings, especially regarding public complaints, system reliability, response time, and recurring technical disruptions. Social media records were also relevant because digital participation channels increasingly function as mechanisms for transparency, public feedback, and citizen engagement in public administration (Manaf & Man, 2021; Mergel, 2013).

Data analysis

Data were analyzed using the interactive qualitative analysis model developed by Miles, Huberman, and Saldaña (2014), which consists of data condensation, data display, and conclusion drawing/verification. First, interview transcripts, observation notes, and documents were condensed through open coding and thematic categorization. The coding process was guided by the main analytical dimensions of the study: information quality, system quality, face-to-face service quality, user satisfaction, trust, legitimacy, operational capacity, and public value.

Second, the coded data were displayed in thematic matrices to compare patterns across informant categories and research sites. This stage enabled the researcher to identify similarities and differences between the perspectives of policymakers, frontline officers, and citizen users. Third, conclusions were drawn and verified continuously through source triangulation, comparison between interview statements and field observations, and cross-checking with documentation. The analysis was directed toward explaining how digital service quality and human service quality interact to produce public value in hybrid passport services. This focus is consistent with public value approaches to e-government, which argue that digital services should be

evaluated not only through technical efficiency but also through service outcomes, institutional legitimacy, citizen trust, and operational capacity (Deng et al., 2018; Karunasena & Deng, 2012; Moore, 2021; Twizeyimana & Andersson, 2019).

RESULTS AND DISCUSSION

Information quality provides administrative certainty but remains technically inconsistent

The first finding shows that the information provided through the M-Paspor application generally helps applicants understand passport requirements before visiting the Immigration Office. Citizen informants (INF-MS) stated that the application provides useful guidance on required documents, appointment schedules, and the initial stages of the passport application process. This reduces uncertainty and allows applicants to prepare administrative requirements more efficiently.

However, the same finding also reveals weaknesses in technical clarity and real-time accuracy. Several applicants experienced inconsistency between the file format required by the application and the format accepted during upload. One applicant stated, "The app stated that documents should be uploaded as JPG files, but whenever I tried to submit, it failed and suddenly required a PDF format. This inconsistent information is confusing and wastes a lot of time" (INF-MS-03, 45-year-old applicant). Applicants also reported that quota availability was not always displayed in real time, creating uncertainty over whether an appointment slot was still valid. Therefore, information quality has improved administrative certainty, but its contribution to public value remains limited when digital instructions are inconsistent.

These findings indicate that information quality contributes positively to reducing administrative uncertainty because applicants receive clear guidance regarding document requirements and registration procedures before visiting the Immigration Office. This supports the Information Quality construct in the DeLone and McLean Information Systems Success Model, which emphasizes that information should be accurate, complete, timely, and understandable to enable effective system use (DeLone & McLean, 2003; 2016). In the context of M-Paspor, applicants generally perceived the information as sufficient for

administrative preparation, thereby reducing uncertainty during the initial stages of passport application.

Nevertheless, inconsistencies between upload instructions and actual system requirements, together with non-real-time quota information, demonstrate that information quality remains imperfect. Such inconsistencies reduce citizens' confidence because procedural guidance becomes unpredictable. Similar findings have been reported in previous e-government studies showing that incomplete or inconsistent digital information diminishes citizens' perceptions of service reliability and lowers confidence in government digital platforms (Papadomichelaki & Mentzas, 2012; Pham et al., 2023). Therefore, while M-Paspor improves administrative certainty, its contribution to public value is constrained when information accuracy is not consistently maintained throughout the service process.

System quality is constrained by centralized server dependence

The second finding indicates that system quality remains one of the most critical challenges in M-Paspor implementation. Informants reported that application instability and server downtime occur most frequently during peak hours. These disruptions affect both applicants and immigration officers because applicants are unable to complete registration smoothly, while frontline officers must respond to complaints caused by technical failures beyond their direct control.

Management informants (INF-PM) explained that these difficulties are related to centralized system management at the Directorate General of Immigration. One official stated, "The M-Paspor application is managed centrally by the Directorate General of Immigration headquarters. When server load peaks at the center, regional office systems experience lags. This creates uncertainty for applicants and places an extra psychological burden on our frontline officers" (INF-PM-02, South Jakarta Immigration Office). This finding shows that centralized digital infrastructure supports standardization, but it can also create operational vulnerability when server capacity is not sufficiently adaptive to regional service demand.

The findings further demonstrate that system quality remains a critical determinant of digital public service performance. According to DeLone

and McLean (2003; 2016), system quality encompasses reliability, availability, response time, and ease of use. Frequent server disruptions during peak hours indicate that these dimensions have not yet been fully achieved within the M-Paspor application.

Moreover, the interviews reveal that centralized server management creates operational vulnerability. Although centralized architecture promotes standardized services across immigration offices, excessive dependence on a single infrastructure increases the likelihood of widespread disruption when demand surges. Similar challenges have been documented in digital government literature, where centralized digital infrastructures often improve governance consistency but simultaneously increase systemic risks unless supported by scalable technological capacity (Scupola & Mergel, 2022). Consequently, improving system reliability requires not only software refinement but also adaptive infrastructure capable of responding to fluctuating service demand.

Face-to-face service quality functions as a corrective layer in hybrid services

The third finding demonstrates that the hybrid character of passport services makes face-to-face service quality highly significant. Although applicants use M-Paspor for registration and document upload, they must still attend the Immigration Office for document verification, biometric data capture, and interviews. As a result, citizens evaluate service quality through both the digital platform and their direct encounter with immigration officers.

Structured observations showed that responsive and empathetic frontline officers were able to reduce dissatisfaction caused by digital errors. Officers helped applicants correct data, understand procedural requirements, and maintain their queue position when technical problems occurred. Frontline officers (INF-PL) emphasized that this assistance is particularly important for elderly applicants and users with limited digital literacy. One officer explained, “Many elderly applicants arrive with incorrect or incomplete application data because they get confused navigating the app on their phones. We take proactive measures by providing dedicated assistance at a special help desk to ensure they do

not lose their spot in line” (INF-PL-04, Central Jakarta Immigration Office). This finding indicates that human service quality does not merely complement digital services; it actively protects service continuity when the digital system does not perform optimally.

This finding illustrates that digitalization has not eliminated the importance of interpersonal service quality. Since passport issuance still requires physical verification, biometric recording, and interviews, applicants evaluate service performance through both digital interaction and direct encounters with frontline officers. The findings strongly support the SERVQUAL framework proposed by Parasuraman et al. (1991), particularly the dimensions of responsiveness, assurance, and empathy. Immigration officers acted as a corrective mechanism whenever applicants encountered technical failures or experienced difficulties navigating the application. This role became particularly important for elderly applicants and individuals with limited digital literacy. Previous studies similarly argue that citizens continue to evaluate e-government services through institutional responsiveness rather than technology alone (Keco et al., 2023; Papadomichelaki & Mentzas, 2012). Therefore, human service quality complements digital infrastructure by maintaining service continuity when technological systems fail.

User satisfaction emerges from certainty, fairness, and trust

The fourth finding shows that user satisfaction is not determined only by service speed. Citizen informants linked satisfaction to administrative certainty, transparent procedures, predictable queues, and the perception that officers were willing to assist applicants fairly. When the digital registration process worked well and frontline officers provided helpful support, applicants perceived the service as more accountable and trustworthy.

Applicants also associated satisfaction with the reduction of dependence on brokers or scalpers. Digital registration and appointment mechanisms were perceived as useful because they made the passport process more transparent and reduced informal practices. In this sense, satisfaction reflects more than individual convenience. It becomes a marker of citizens’ confidence that immigration

services are fair, accessible, and professionally managed.

The findings indicate that user satisfaction extends beyond perceptions of efficiency or processing speed. Applicants associated satisfaction with administrative certainty, procedural transparency, equitable treatment, and officers' willingness to assist. This pattern is consistent with Expectancy-Disconfirmation Theory, which explains that satisfaction occurs when actual service performance meets or exceeds prior expectations (Oliver, 1976).

In the context of digital public services, satisfaction also performs an institutional function. Previous studies demonstrate that satisfied users develop greater trust in government institutions and become more willing to continue using digital public services (Desmal et al., 2022; Fathya et al., 2023; Sachan et al., 2018). The present findings reinforce this relationship, showing that applicants who experienced both reliable digital services and supportive frontline officers perceived immigration services as more transparent, accountable, and trustworthy. Satisfaction therefore acts as a bridge connecting service experience with institutional legitimacy.

Public value is produced through the integration of digital reliability and human service capacity

The fifth finding confirms that public value in hybrid passport services is created through the interaction between digital reliability and human-centered service capacity. Information quality and system quality contribute to public value by improving administrative certainty, reducing unnecessary queues, and supporting more efficient resource allocation. However, these digital elements are not sufficient when applicants face system disruptions, digital literacy barriers, or uncertainty regarding uploaded documents and appointment status.

Frontline service quality transforms digital convenience into broader public value by strengthening trust, compliance, and institutional legitimacy. When applicants feel that the institution is transparent and officers are responsive, they are more willing to comply with formal procedures, provide valid personal and biometric data, and accept digital immigration services as legitimate state services. Thus, public value emerges not only from the existence of the M-Paspor application but

from the institutional ability to integrate reliable technology with professional, empathetic, and responsive service delivery.

The final finding synthesizes the previous themes by demonstrating that public value is co-produced through the interaction between technological capability and institutional service quality. Information quality enhances administrative certainty, system quality facilitates operational efficiency, and frontline service quality ensures continuity when technological limitations occur. Together, these dimensions generate broader societal outcomes that extend beyond individual user experience.

This interpretation aligns with Public Value Theory, which argues that government performance should be evaluated through public service outcomes, legitimacy and public support, and operational capacity (Moore, 2021; Jørgensen & Bozeman, 2007; Twizeyimana & Andersson, 2019). In this study, public service outcomes are reflected in improved procedural efficiency and reduced administrative barriers; legitimacy is reflected in increased public trust and declining dependence on informal intermediaries, while operational capacity is demonstrated through the ability of immigration offices to sustain services despite technological disruptions. These findings further support recent public value literature emphasizing that digital transformation creates value only when reliable technology is integrated with responsive institutions and positive citizen experiences (Deng et al., 2018; Karunasena & Deng, 2012; Mensah et al., 2022; Scupola & Mergel, 2022).

CONCLUSION

This study concludes that public value in Jakarta's travel document services is shaped by the interaction between the digital reliability of the M-Paspor application and the interpersonal quality of frontline immigration services. The findings answer the research focus by showing that information quality and system quality provide the foundation for administrative certainty and operational efficiency, while face-to-face service quality transforms digital convenience into satisfaction, trust, and institutional legitimacy. Public value is therefore not created by digitalization alone, but by the ability of the institution to integrate reliable

technology with responsive and empathetic service delivery.

The study identifies five central findings. First, M-Paspor improves administrative certainty by providing applicants with digital guidance on requirements and procedures, although inconsistencies in upload instructions and quota information still create confusion. Second, system quality remains constrained by centralized server dependence and peak-hour instability. Third, frontline service quality functions as a corrective layer that protects service continuity when the digital system fails or when applicants face digital literacy barriers. Fourth, user satisfaction emerges from certainty, fairness, transparency, and reduced dependence on brokers. Fifth, public value is produced when digital reliability and human service capacity are integrated into a coherent hybrid service model.

Based on these findings, several recommendations are proposed. The Directorate General of Immigration should strengthen server capacity and consider a more flexible distributed infrastructure to reduce systemic downtime. The M-Paspor interface should be improved by synchronizing digital instructions with actual verification standards at Immigration Offices, especially regarding upload formats, document requirements, and appointment status. In addition, continuous SERVQUAL-based training should be provided to frontline officers to strengthen responsiveness, empathy, communication, and crisis handling. Future research may compare M-Paspor implementation across provinces, examine user experience among vulnerable groups in greater depth, or combine qualitative findings with quantitative measurement of public value, trust, and satisfaction. Overall, sustainable digital immigration services require not only technological modernization but also institutional accountability, inclusive service design, and human-centered public service ethics.

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