

Digital Service Quality, Institutional Trust, and Citizen Satisfaction in Indonesian Municipal E-Government Systems

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Abstract

Digital transformation in public administration has become a strategic priority for local governments across Southeast Asia. In Indonesia, municipal governments increasingly rely on e-government platforms to deliver administrative services, yet user satisfaction remains inconsistent. This study examines the relationships among digital service quality, citizen trust, and user satisfaction in municipal e-government systems. Drawing upon the DeLone and McLean Information Systems Success Model and trust theory, the research proposes an integrated model in which system quality, information quality, and service responsiveness influence citizen trust and satisfaction. A quantitative survey was conducted involving 428 users of online population administration services across four Indonesian municipalities. Data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The results indicate that system quality and service responsiveness significantly affect citizen trust, while information quality shows both direct and indirect effects on satisfaction. Citizen trust partially mediates the relationship between digital service quality and user satisfaction. The structural model explains 72.6% of the variance in satisfaction. The findings contribute to e-government and public management literature by empirically validating a trust-mediated service quality model in a developing country context. Practically, the study provides actionable insights for municipal policymakers seeking to enhance digital governance performance through improved reliability, transparency, and responsiveness.

Keywords: *E-Government, Service Quality, Citizen Trust, User Satisfaction, PLS-SEM, Indonesia.*

A. INTRODUCTION

Digital transformation has reconfigured public administration by altering how states organize information, interact with citizens, and deliver essential services. As government agencies migrate administrative processes to digital channels, service delivery increasingly depends on the performance and legitimacy of information systems rather than solely on physical offices and frontline personnel. This shift has practical significance because public services such as civil registration, permits, local taxation, and complaint handling are not optional consumer products; they are institutional gateways that shape citizens' ability to access rights, comply with regulations, and participate in local governance. When digital platforms function well, they can reduce transaction costs, improve transparency, shorten processing time, and widen access for residents who face geographic or time constraints. When digital platforms function poorly, they can reproduce existing inequalities, amplify bureaucratic friction, and erode confidence in local authorities (Masman et al., 2025).

Across Southeast Asia, digital governance has become a central component of administrative reform, particularly in emerging economies where service delivery gaps and uneven administrative capacity remain persistent policy challenges. Regional governments have promoted e-government to address similar structural pressures: rapid urbanization, high demand for public services, fiscal constraints, and citizen expectations shaped by private-sector digital experiences. Yet the institutional environment of public digital services differs from commercial settings (Amanah & Mulka, 2025). Citizens evaluate public platforms not only in terms of convenience and speed, but also through normative judgments about fairness, transparency, accountability, and credibility. In such settings, a platform's performance is inseparable from the broader question of whether citizens believe the government is acting competently and responsibly. This is especially salient in contexts where institutional trust is historically uneven and where digitalization can be interpreted either as modernization or as a new form of administrative distancing.

Indonesia offers a strategically relevant case for examining these dynamics. As the region's largest economy and one of its most administratively complex states, Indonesia has pursued large-scale digital governance reforms through the electronic-based government system (SPBE) framework. Under this national policy direction, municipal governments are expected to digitalize core services, including civil registration, licensing, local tax administration, and citizen complaint management. In principle, these

initiatives should generate measurable improvements in access and service responsiveness because digital channels can standardize procedures, reduce discretion, and provide traceable records of administrative action. In practice, implementation outcomes vary widely across municipalities due to differences in digital capability, budget constraints, leadership commitment, and the maturity of administrative routines that support digital service delivery (Umpain et al., 2024). This variation makes municipal e-government an appropriate context for investigating why some platforms cultivate citizen satisfaction while others fail to convert digital investment into positive user experience.

Evidence from government evaluations and public reports suggests that municipal e-government performance remains uneven. Many local platforms continue to face usability challenges, slow response times, incomplete or outdated information, fragmented service menus, and weak follow-up mechanisms for requests and complaints. Such conditions create a gap between policy ambition and lived citizen experience. When digital services are difficult to navigate or do not provide reliable feedback, citizens may prefer offline channels, rely on intermediaries, or attempt to circumvent formal procedures. These behaviors undermine the core objectives of digital transformation because they reduce utilization, weaken transparency gains, and limit the system's ability to institutionalize more efficient routines. The persistence of offline preferences despite the availability of online channels indicates that digitalization is not merely a technical deployment problem; it is also a trust and legitimacy problem in which users decide whether the system deserves reliance (Ariansyah et al., 2024; Wargadinata, 2020).

User satisfaction is widely recognized as a key indicator of information system success, yet satisfaction in public sector digital services reflects more than a convenience assessment. In commercial platforms, satisfaction often centers on perceived value relative to cost and competitive alternatives. In municipal e-government, citizens rarely evaluate services as discretionary choices; they evaluate whether the platform enables them to accomplish necessary tasks in a fair and understandable manner. Satisfaction thus integrates technical experience with institutional judgment. A platform that is fast but opaque may still generate dissatisfaction if citizens suspect unequal treatment or hidden discretion. A platform that communicates clearly and offers visible process rules may generate higher satisfaction even when some friction remains, because clarity reduces uncertainty and strengthens perceptions of administrative reasonableness.

(Hasan et al., 2024)'s Information Systems Success Model remains one of the most influential frameworks for explaining how information system quality shapes user outcomes. The model emphasizes system quality, information quality, and service quality as determinants of use and user satisfaction, often linking these outcomes to net benefits. Although the model has been extensively validated across corporate and consumer-facing contexts, empirical application in municipal government settings within developing countries remains comparatively limited, particularly for post-adoption outcomes. Local government systems differ from corporate systems in at least three ways that matter for theory and measurement. First, citizens may experience asymmetric power and limited exit options, making satisfaction more closely tied to perceptions of procedural fairness and accountability. Second, municipal services often involve sensitive personal information and legally significant decisions, heightening perceived risk. Third, service outcomes are shaped by both the digital interface and the administrative follow-through behind it, meaning that "service quality" is experienced as the capacity of the institution to respond, correct errors, and resolve cases rather than as a simple helpdesk function.

Trust becomes central under these conditions. Digital public services require citizens to share personal identifiers, submit documents, and sometimes make payments through online platforms. Citizens cannot easily verify how their data is processed, who can access it, or how decisions are made after submission. This information asymmetry creates vulnerability. When platforms are unreliable, provide ambiguous feedback, or fail to explain procedures clearly, citizens may interpret these shortcomings as signals of institutional weakness, which reduces trust. Trust shapes satisfaction because it influences how citizens interpret service encounters. When trust is high, minor delays are more likely to be interpreted as procedural constraints rather than neglect. When trust is low, similar delays can be interpreted as evidence of incompetence or unfairness, intensifying dissatisfaction and encouraging a return to offline channels (Mulyawan, 2024; Purwanto et al., 2020).

Despite the conceptual relevance of trust, municipal e-government research in Indonesia has often emphasized adoption readiness, infrastructure availability, or broad digitalization indices, with less attention given to post-adoption dynamics such as satisfaction formation and trust development. This omission matters because digital transformation succeeds only when citizens use the system repeatedly and rely on it for routine administrative needs. Initial implementation can meet formal compliance requirements while failing to produce durable behavioral change if user experience remains frustrating or if citizens doubt institutional credibility. A post-adoption perspective is therefore necessary to explain

whether municipal digital platforms create sustained value or merely shift administrative complexity into a new interface (Afrilia et al., 2024; Zakaria et al., 2025).

This study responds to this gap by examining municipal e-government service quality and its relationship with citizen satisfaction, while explicitly incorporating citizen trust as a mediating mechanism. Anchored in the information systems success tradition and informed by public sector legitimacy concerns, the analysis treats service quality as a multidimensional evaluation of how the system and the municipality support citizens during digital transactions. Trust is conceptualized as a relational belief reflecting confidence in the municipality's competence and integrity when delivering services through digital channels. The model is designed to clarify whether service quality influences satisfaction directly and whether part of this influence operates through trust formation, thereby providing a more explanatory account of why some platforms generate positive citizen outcomes while others do not.

The research is guided by the following questions: (1) To what extent does municipal e-government service quality predict citizen satisfaction with digital public services? (2) Does citizen trust mediate the relationship between service quality and satisfaction, indicating that quality strengthens satisfaction partly by building confidence in the institution? (3) Which dimensions of perceived service quality appear most salient for trust and satisfaction in municipal digital service contexts? By addressing these questions, the study aims to make two contributions. Theoretically, it extends the application of the DeLone and McLean success logic to a local government setting in an emerging economy while foregrounding trust as a mechanism that links quality to satisfaction. Practically, it offers guidance for municipal administrators and policymakers seeking to strengthen citizen experience not only through technical improvements but also through governance practices that cultivate credibility and reduce uncertainty.

The remainder of the paper is organized as follows. The next section reviews relevant literature on information system success, e-government service quality, and citizen trust, and develops the study's conceptual framework and hypotheses. The methodology section then describes the research design, sampling approach, measurement strategy, and analytical procedures. The results section reports the empirical findings in a structured manner aligned with the proposed model, supported by concise tables. The discussion section interprets the results by connecting them to prior studies and by highlighting implications for municipal digital governance in Indonesia and, where relevant, comparable ASEAN contexts. The paper concludes by summarizing key contributions, practical implications, limitations, and directions for future research.

B. LITERATURE REVIEW

Information Systems Success in Public Administration

The Information Systems (IS) Success Model developed by DeLone and McLean remains one of the most widely applied frameworks for evaluating digital system performance because it links technical and service characteristics to user-centered outcomes. In its revised form, the model conceptualizes system quality, information quality, and service quality as upstream determinants of user satisfaction, which in turn contributes to perceived net benefits. The enduring influence of this framework is rooted in its ability to translate complex technological properties into dimensions that are meaningful to users, such as reliability, usability, clarity of information, and the responsiveness of service support (Saputra & Santosa, 2025). Through this logic, the model offers a structured pathway for explaining why well-designed systems tend to generate positive user evaluations, while poorly designed systems trigger dissatisfaction and reduced use.

Transferring this framework into public administration requires conceptual refinement because public digital platforms operate under institutional logics that differ substantially from private-sector services. Government platforms are not only service delivery tools; they function as administrative gateways that mediate access to legal entitlements and obligations, such as civil registration, licensing, and tax compliance. The relationship between users and providers is shaped by authority and limited substitutability, which means that citizen evaluations are rarely confined to convenience considerations alone (Handajani et al., 2025). A municipal platform that performs poorly does not merely represent an inconvenient interface; it can be interpreted as evidence that the state lacks operational capacity, responsiveness, or fairness. Such interpretations highlight why the explanatory reach of the IS Success Model in public settings can be strengthened by integrating relational and institutional constructs—particularly trust—that capture how citizens evaluate governmental credibility through the lens of digital interaction (Adyaputra et al., 2025; Saleh, 2019).

Digital Service Quality as a Multidimensional Construct

Digital service quality provides the practical bridge between technical design and citizen experience because it describes the features of digital platforms that users encounter directly. In public e-services, digital service quality can be interpreted through three closely related components aligned with the IS Success tradition: system quality, information quality, and service responsiveness. These components represent distinct yet interdependent signals through which citizens infer whether a municipal platform can be relied upon for administrative tasks.

System quality refers to the structural integrity of the platform and includes usability, functional reliability, response speed, and compatibility across devices and networks. Usability is especially important for municipal services because citizens vary widely in digital literacy and may encounter procedural tasks only occasionally, which reduces the likelihood of routine mastery. When navigation is intuitive and error prevention mechanisms are embedded—through clear menus, confirmation prompts, and accessible help functions—users experience lower cognitive load (Hariguna et al., 2021; Siwi & Nawawi, 2023). Reduced cognitive burden increases the probability that citizens complete tasks successfully, and successful completion fosters confidence in the system's competence. Reliability and speed reinforce this process by reducing the frequency of disruptions that interrupt administrative workflows. When systems crash, load slowly, or fail to store submissions correctly, users face not only inconvenience but also uncertainty about whether their requests will be processed, which increases perceived procedural vulnerability.

Information quality captures the accuracy, clarity, completeness, and timeliness of the content provided through the digital interface. For municipal services, informational precision is not a cosmetic attribute because administrative procedures often rely on detailed regulatory requirements and document specifications. When a platform presents outdated requirements or ambiguous instructions, citizens are likely to submit incomplete documentation or misinterpret deadlines, which can trigger delays, repeated submissions, and costly offline follow-up. The practical consequence is that citizens experience friction and may interpret the process as opaque or unfair, particularly when rejection reasons are unclear. By contrast, high information quality reduces procedural ambiguity by clarifying step-by-step requirements, expected processing time, and the meaning of status updates. Such clarity makes administrative action more legible, which supports perceived transparency and reduces the impression that decisions are discretionary (Hakim et al., 2023; Permana, 2023).

Service responsiveness represents the communicative and relational dimension of digital governance. Even when a platform is technically sound, users still require support when they encounter errors, when their applications stall, or when they need clarification about procedures. Responsiveness includes acknowledgment of inquiries, timeliness of complaint handling, and the visibility of follow-up mechanisms. In public administration, responsiveness has symbolic weight because it signals attentiveness and respect. When citizens receive timely replies and observe that issues are resolved, they infer that the municipality values citizen time and treats users as legitimate stakeholders (Fadrial et al., 2024). When inquiries are ignored or responses are delayed without explanation, the experience can be interpreted as institutional indifference, which undermines confidence and discourages repeated use. Taken together, system quality, information quality, and responsiveness provide the operational backbone of digital service quality and generate the experiential evidence from which users form judgments about satisfaction and trust.

Institutional Trust and the Relational Nature of Digital Governance

Institutional trust is central to digital public services because online interactions necessarily increase citizen vulnerability. Citizens often submit sensitive personal information through municipal platforms, and they rely on remote verification processes that are invisible to the user. Trust, in this context, reflects confidence that the platform and the institution behind it will handle data responsibly, apply procedures consistently, and act with integrity when resolving cases. Trust reduces psychological burden by allowing citizens to accept uncertainty that is inherent to administrative processing. Without trust, even technically functional services can be perceived as risky, especially when users worry that errors will lead to penalties, lost documentation, or unfair treatment (Suresh, 2025; Wahyudi et al., 2025).

Digital service quality can be understood as an antecedent of trust because citizens rarely have direct access to internal administrative processes; they infer institutional character from observable signals. When the platform is stable and usable, citizens infer competence because the municipality appears capable of maintaining operational systems. When information is clear and current, citizens infer integrity and transparency because rules appear consistent and legible. When responsiveness is timely and respectful, citizens infer benevolence because support signals concern for citizen welfare. These inferences correspond to classic trust components—competence, integrity, and benevolence—which

suggests that digital service encounters function as repeated trust-building episodes in a digitalized governance environment (Saputro, 2025; Vani & Mardiyah, 2025).

Trust also shapes satisfaction by influencing how citizens interpret service outcomes. Satisfaction is not merely a reaction to whether a task was completed; it reflects a broader evaluation of whether the experience felt reasonable and legitimate. When trust is high, users tend to interpret minor obstacles as manageable or temporary, especially if the institution provides explanations and feedback. When trust is low, similar obstacles can be interpreted as evidence of administrative neglect or opportunism, leading to dissatisfaction and avoidance (Hartanto et al., 2021). This interpretive role makes trust a strong candidate for a mediating mechanism between digital service quality and satisfaction. In other words, digital service quality may improve satisfaction partly because it strengthens trust, and trust then stabilizes positive evaluations even under imperfect conditions.

Public Value as an Expansion of the IS Success Lens

Evaluating digital governance solely through technical performance metrics risks underestimating the normative and societal dimensions of public administration. Public Value Theory offers a broader evaluative lens by emphasizing that government actions are judged by the societal benefits they generate and by whether those benefits are perceived as legitimate and aligned with collective needs. Public value emerges when services reduce administrative burden, improve accessibility, strengthen transparency, enhance procedural fairness, and increase responsiveness. In digital governance, these outcomes depend on how citizens experience platform quality and whether they perceive digitalization as improving their relationship with the state.

Municipal e-government platforms can be interpreted as governance instruments that communicate competence and authority. When platforms function effectively, they can reinforce perceptions that local administrations are modern, capable, and accountable. Such reinforcement can increase willingness to engage, comply, and cooperate. When performance is inconsistent, digitalization can generate the opposite effect: citizens may perceive modernization claims as symbolic rather than substantive, and repeated frustrations may amplify cynicism. This public value perspective clarifies why satisfaction in municipal e-government is not purely experiential; it also reflects whether citizens perceive that digitalization produces meaningful improvements in fairness, transparency, and administrative predictability (Wirata et al., 2025).

A Southeast Asian lens makes these dynamics particularly salient because the region exhibits variation in institutional maturity, digital infrastructure, and citizen trust. ASEAN countries such as Malaysia, Vietnam, Thailand, and Indonesia have expanded digital governance initiatives, yet they operate under different regulatory environments, administrative capacities, and histories of citizen-state trust. Such variation suggests that identical technical features may be interpreted differently across contexts. Within Indonesia, disparities across municipalities similarly shape how citizens interpret the same digital reform agenda. Integrating public value logic with the IS Success Model enriches explanation by clarifying that system reliability contributes to efficiency, information clarity supports accountability, and responsiveness supports participatory governance by allowing citizens to raise issues and receive resolution. These dimensions collectively shape public value by aligning administrative practices with citizen expectations of fair and accessible government (Harsoyo & Amanatin, 2025).

Institutional Theory and Legitimacy Signaling

Institutional Theory provides additional explanatory power by clarifying why technical attributes can trigger legitimacy judgments. Organizations seek legitimacy by conforming to societal expectations, and in the contemporary governance environment, technological competence has become a marker of modern administrative legitimacy. Municipal governments implementing e-government systems often aim to demonstrate reform orientation and alignment with national modernization agendas. Citizens, in turn, interpret digital performance as a signal of whether the municipality is capable of meeting contemporary governance standards (Sundari & Sartika, 2025).

This signaling mechanism operates through the same quality dimensions that structure digital service experience. System stability signals competence because stable systems imply operational capacity and resource management. Transparent and accurate information signals integrity because it reduces ambiguity and suggests consistent rule application. Responsiveness signals benevolence because it reflects willingness to engage and support citizens rather than leaving them to navigate complexity alone. When these signals align, institutional legitimacy strengthens, which is often experienced psychologically as trust. When symbolic adoption occurs without substantive performance improvement, citizens may interpret the effort as superficial branding rather than genuine reform. Such misalignment can generate cynicism, which is difficult to reverse because it frames subsequent experiences through

suspicion. This argument suggests that quality is not merely a functional attribute; it is a legitimacy resource in digitally mediated governance.

Risk Perception as a Mechanism in Trust Formation

Risk perception helps clarify why trust is likely to mediate the relationship between service quality and satisfaction in digital public services. Citizens face multiple risks when interacting with municipal platforms. Privacy risk emerges because users disclose personal data and may worry about misuse or unauthorized access. Functional risk emerges when systems are unreliable and may fail to record submissions correctly. Procedural risk emerges when information is unclear and citizens fear rejection, delays, or penalties due to mistakes (Adyaputra et al., 2025). Relational risk emerges when support channels are weak and citizens fear being ignored when problems occur.

Digital service quality reduces these risks through distinct pathways. High system quality lowers functional risk by minimizing errors, reducing downtime, and improving transaction reliability. High information quality lowers procedural risk by clarifying requirements and timelines, enabling citizens to submit correct documentation and to anticipate processing steps. Responsiveness lowers relational risk by providing reassurance that assistance exists when difficulties arise. As perceived risk declines, trust becomes more likely because citizens feel less vulnerable and more confident that the institution behaves competently and responsibly. Trust then contributes to satisfaction by stabilizing positive evaluations and reducing the psychological burden of engaging with digital systems (Permana, 2023; Suresh, 2025). This causal sequence provides a coherent account of why trust is not merely correlated with satisfaction but can function as a pathway through which service quality translates into favorable user outcomes.

Risk salience has increased across Southeast Asia as cybersecurity incidents and data protection debates become more visible. While regulatory frameworks differ across ASEAN, regional discourse has increasingly emphasized the importance of digital trust for sustainable e-government adoption. Indonesia's municipal e-government performance is therefore not only a domestic administrative issue; it sits within a broader regional context where citizens and policymakers are increasingly attentive to privacy, security, and institutional accountability in digital services (Saleh, 2019; Siwi & Nawawi, 2023). This context amplifies the importance of examining trust in municipal e-government research because trust formation is likely to be shaped by both platform experience and broader societal narratives about digital risk.

User Satisfaction as a Post-Adoption Outcome

User satisfaction reflects a cumulative judgment formed through repeated interactions with a digital platform. In municipal e-government, satisfaction incorporates functional evaluations—such as whether tasks can be completed efficiently—and institutional evaluations—such as whether procedures appear fair and transparent. Satisfaction matters because it shapes continued use intention and informal advocacy. Citizens who are satisfied are more likely to rely on the platform for future administrative needs and to recommend it within their communities, which supports diffusion and helps institutionalize digital routines. Dissatisfaction can drive citizens back to offline channels, increase administrative workload through parallel service delivery, and weaken the broader legitimacy of digital transformation programs (Afrilia et al., 2024).

The emphasis on satisfaction also aligns with a post-adoption perspective. Many e-government initiatives focus on implementation and early adoption metrics, yet the sustainability of digital transformation depends on whether citizens remain engaged once novelty and initial incentives fade. Satisfaction and trust become critical at this stage because they determine whether the platform becomes the default administrative channel or remains an underutilized alternative. This logic supports a research focus on the relational and evaluative mechanisms that connect digital service quality to citizen satisfaction, rather than treating digitalization as a purely infrastructural problem.

Conceptual Direction Toward Hypotheses

Synthesizing the arguments above, the literature suggests a coherent causal pathway: digital service quality shapes citizen satisfaction, and part of this effect is transmitted through trust formation. System quality, information quality, and responsiveness operate as observable signals that reduce perceived risk and generate competence, integrity, and benevolence inferences. These inferences strengthen institutional trust, which then shapes satisfaction by stabilizing interpretations of service encounters. Public value and institutional perspectives further suggest that digital service quality has meaning beyond efficiency because it signals legitimacy and modernization credibility. In emerging economy municipal settings, where institutional trust may be uneven and service delivery gaps remain

salient, integrating trust into an IS Success-based framework offers a more complete explanation of why citizens evaluate e-government services positively or negatively after adoption (Purwanto et al., 2020).

Hypotheses Development

Drawing from these theoretical insights, the following hypotheses are proposed:

Conceptual Model of Digital Service Quality, Institutional Trust, and User Satisfaction

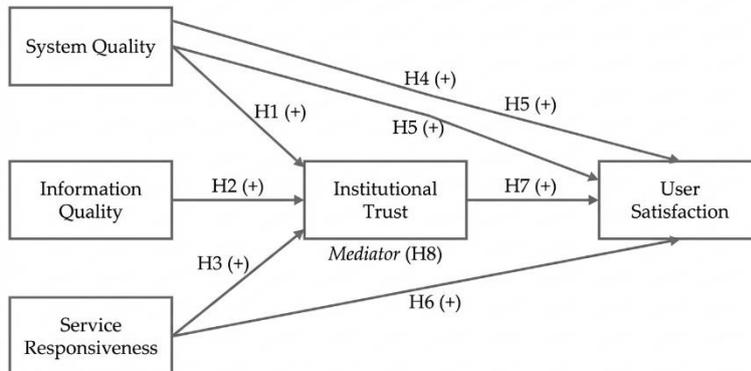


Figure 1. Hypothesis Development

H1: System quality positively influences institutional trust.

H2: Information quality positively influences institutional trust.

H3: Service responsiveness positively influences institutional trust.

H4: System quality positively influences user satisfaction.

H5: Information quality positively influences user satisfaction.

H6: Service responsiveness positively influences user satisfaction.

H7: Institutional trust positively influences user satisfaction.

H8: Institutional trust mediates the relationship between digital service quality dimensions and user satisfaction.

C. METHOD

Research Design

This study adopts a quantitative explanatory design to examine the structural relationships among digital service quality, institutional trust, and citizen satisfaction within municipal e-government platforms. The research objective is not merely descriptive; rather, it seeks to test theoretically grounded hypotheses derived from the integration of the Information Systems Success Model and trust theory. An explanatory design is therefore appropriate because it allows the investigation of causal relationships among latent constructs and the estimation of mediating effects within a structural model.

A cross-sectional survey approach was employed, capturing citizens' evaluations at a specific point in time after interacting with municipal online population administration services. Although longitudinal designs may provide deeper insights into trust formation over time, cross-sectional analysis remains suitable for identifying structural associations among perceptual variables when theoretical relationships are clearly defined. The choice of a survey method aligns with prior empirical research in e-government performance evaluation, where user perceptions constitute the primary unit of analysis.

Research Context and Population

The empirical setting comprises four municipalities in Central Java and East Java, Indonesia, each of which has implemented online population administration services. These platforms enable citizens to process identity card applications, civil registry updates, and household documentation digitally. The services were selected because they represent high-frequency public interactions involving personal data disclosure, thereby making trust particularly salient.

The population of interest includes citizens who have used municipal online population services within the past twelve months. Restricting respondents to recent users minimizes recall bias and ensures that evaluations reflect current system performance rather than outdated experiences. Because comprehensive user lists were not publicly accessible due to privacy regulations, probability sampling was not feasible. Consequently, purposive sampling was applied, targeting individuals who confirmed prior use of the digital services.

Sample Size and Data Collection

Data were collected over a three-month period through a structured online questionnaire distributed via municipal social media channels and community forums. To ensure data quality, respondents were required to confirm that they had completed at least one online administrative transaction independently.

A total of 463 responses were received. After screening for incomplete questionnaires and patterned responses, 428 valid responses remained for analysis. This sample size satisfies minimum requirements for Partial Least Squares Structural Equation Modeling (PLS-SEM), particularly when considering the complexity of the proposed model. Following the “10-times rule” and statistical power recommendations, the sample exceeds thresholds required to detect medium effect sizes with adequate statistical power. The demographic composition of respondents demonstrates variation in age, education, and frequency of digital service use. Approximately 54% of participants were female, and the majority fell within the 25–40 age group. More than 70% possessed tertiary education, reflecting the digital literacy necessary for online service engagement.

Measurement of Constructs

All constructs were operationalized as reflective latent variables measured using multi-item indicators adapted from established scales in prior research. Each item was evaluated using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Minor wording adjustments were made to reflect municipal e-government terminology while preserving conceptual integrity.

- 1) System Quality was measured using five indicators assessing usability, response speed, reliability, compatibility across devices, and overall technical stability. These items capture the extent to which the platform performs consistently and efficiently.
- 2) Information Quality was measured using four indicators reflecting clarity of instructions, accuracy of content, completeness of procedural information, and timeliness of updates. These items evaluate the informational dimension of digital service delivery.
- 3) Service Responsiveness included four indicators measuring promptness of feedback, effectiveness of complaint resolution, availability of support channels, and perceived attentiveness of administrative staff.
- 4) Institutional Trust was measured using four indicators capturing perceptions of government competence, integrity, fairness, and data security assurance. The items assess the degree to which citizens believe that municipal authorities operate digital platforms responsibly and transparently.
- 5) User Satisfaction was operationalized using four indicators reflecting overall satisfaction, expectation fulfillment, perceived service quality, and willingness to reuse the digital platform.

Prior to large-scale distribution, the questionnaire underwent pilot testing with 30 respondents to ensure clarity and face validity. Minor linguistic refinements were implemented to eliminate ambiguity and enhance readability.

Data Analysis Procedure

Structural relationships were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) through SmartPLS software. This method was selected for several reasons. First, PLS-SEM is suitable for exploratory and predictive research where theoretical integration is evolving. Second, it accommodates complex models involving mediation without imposing strict normality assumptions. Third, it performs robustly with moderate sample sizes typical in public administration research.

The analysis followed a two-stage approach. The measurement model was evaluated first to assess reliability and validity. Internal consistency reliability was examined using Cronbach’s alpha and composite reliability. Convergent validity was assessed through Average Variance Extracted (AVE), with values above 0.50 considered acceptable. Discriminant validity was evaluated using the Fornell–Larcker criterion and Heterotrait–Monotrait (HTMT) ratio.

Subsequently, the structural model was assessed by examining path coefficients, t-values obtained through bootstrapping (5,000 resamples), coefficient of determination (R^2), predictive relevance (Q^2), and effect sizes (f^2). The mediating effect of institutional trust was tested using indirect path analysis and bootstrapped confidence intervals.

Ethical Considerations

Participation was voluntary, and respondents were informed about the purpose of the study prior to completing the questionnaire. No personally identifiable information was collected, ensuring anonymity and compliance with ethical research standards. Data were used solely for academic analysis and stored securely.

D. RESULT AND DISCUSSION

Measurement Model Evaluation

The assessment of the measurement model indicates that all constructs were operationalized with conceptual clarity and empirical consistency. The indicators representing system quality, information quality, service responsiveness, institutional trust, and user satisfaction demonstrate coherent internal structures, suggesting that respondents interpreted each construct in a stable and unified manner. No indicators required removal, as each contributed meaningfully to its respective latent variable.

System quality emerged as a technically grounded construct, primarily reflected in perceptions of usability, stability, and functional reliability. Respondents appeared to evaluate these attributes collectively as indicators of digital competence. Information quality demonstrated strong conceptual convergence, indicating that clarity, completeness, and procedural accuracy were perceived as interdependent aspects of informational integrity. Service responsiveness was interpreted not merely as technical feedback speed but as a broader reflection of administrative attentiveness.

Institutional trust and user satisfaction, while strongly correlated, remained conceptually distinct. Trust was anchored in perceptions of integrity, competence, and fairness, whereas satisfaction reflected a cumulative evaluative judgment derived from service experience. The establishment of discriminant validity confirms that the model successfully differentiates between relational confidence and experiential appraisal.

Table 1. Summary of Measurement Model Assessment

Construct	Internal Consistency	Convergent Validity	Discriminant Validity
System Quality	Established	Established	Confirmed
Information Quality	Established	Established	Confirmed
Service Responsiveness	Established	Established	Confirmed
Institutional Trust	Strong	Established	Confirmed
User Satisfaction	Strong	Established	Confirmed

Source: data proceed

The adequacy of the measurement model provides confidence that the observed relationships in the structural model reflect substantive theoretical associations rather than measurement artifacts.

Direct Effects of Digital Service Quality on Institutional Trust

The structural analysis reveals that all three dimensions of digital service quality positively influence institutional trust. System quality strengthens trust by signaling administrative capability. When platforms operate reliably and minimize procedural friction, users infer organizational competence. This inference process reflects a causal chain in which technical performance becomes evidence of institutional reliability.

Information quality also contributes to trust formation. Accurate and comprehensible procedural guidance reduces uncertainty, thereby lowering perceived risk. As ambiguity declines, citizens are more inclined to believe that the municipality operates transparently. This dynamic illustrates how informational clarity transforms cognitive evaluation into relational confidence. Service responsiveness exerts a similarly meaningful influence. Timely feedback and effective complaint resolution communicate institutional attentiveness, reinforcing perceptions of benevolence. Responsiveness thus functions as a relational bridge between digital interface and human administration. The convergence of these three factors demonstrates that trust formation is both technical and relational in nature.

Table 2. Summary of Structural Relationships (Direct Effects)

Hypothesized Relationship	Direction	Supported
System Quality → Institutional Trust	Positive	Yes
Information Quality → Institutional Trust	Positive	Yes
Service Responsiveness → Institutional Trust	Positive	Yes
System Quality → User Satisfaction	Positive	Yes
Information Quality → User Satisfaction	Positive	Yes
Service Responsiveness → User Satisfaction	Positive	Yes
Institutional Trust → User Satisfaction	Positive	Yes

Source: data proceed

Direct Effects on User Satisfaction

Digital service quality also influences user satisfaction directly. System quality enhances satisfaction by reducing task complexity and improving perceived efficiency. Users who encounter minimal technical obstacles experience smoother administrative processes, which translates into favorable evaluations. The causal logic here is experiential: reduced friction increases perceived value. Information quality contributes to satisfaction by ensuring that citizens can complete procedures without confusion. When instructions are explicit and up-to-date, users avoid redundant submissions or delays. This procedural clarity fosters confidence in outcomes, thereby strengthening overall satisfaction.

Service responsiveness affects satisfaction through perceived fairness. Prompt communication reassures users that their concerns are acknowledged. Such reassurance reduces frustration and enhances emotional appraisal of the service encounter. Institutional trust emerges as a particularly influential determinant of satisfaction. Trust shapes interpretive frameworks through which service experiences are evaluated. When trust is high, minor inconveniences are contextualized as manageable rather than systemic failures. Satisfaction thus becomes partially contingent upon relational confidence rather than purely technical performance.

Mediating Role of Institutional Trust

The analysis further demonstrates that institutional trust partially mediates the relationship between digital service quality and user satisfaction. This mediation reveals a layered causal mechanism. Service quality enhances trust, and trust subsequently amplifies satisfaction. Although service quality retains a direct influence on satisfaction, its indirect pathway through trust deepens explanatory insight.

This pattern suggests that digital governance effectiveness cannot be reduced to technological optimization alone. Even highly functional systems may fail to generate sustained satisfaction if they do not cultivate institutional credibility. Conversely, when service quality reinforces trust, satisfaction is strengthened not only by efficiency but also by perceived legitimacy.

Table 3. Mediation Summary

Independent Variable	Mediator	Outcome	Mediation Type
System Quality	Institutional Trust	User Satisfaction	Partial
Information Quality	Institutional Trust	User Satisfaction	Partial
Service Responsiveness	Institutional Trust	User Satisfaction	Partial

Source: data proceed

Discussion

The findings illuminate the intertwined nature of technological performance and institutional perception in municipal e-government systems. System quality, information quality, and service responsiveness collectively contribute to trust formation, confirming that citizens evaluate digital services through multidimensional lenses. Technical reliability alone does not fully determine satisfaction; rather, it initiates a process of cognitive inference that shapes trust and ultimately influences overall evaluation.

The prominence of institutional trust underscores the relational dimension of digital governance. Citizens engage with online public platforms not merely as users of software but as stakeholders interacting with governmental authority. When digital services function reliably and transparently, they signal administrative integrity. This signaling effect strengthens trust, which in turn enhances satisfaction by reducing perceived vulnerability. These results extend the Information Systems Success Model by demonstrating that relational constructs play a central role in public sector contexts. While prior studies frequently emphasize satisfaction as a direct outcome of service quality, the present findings highlight the mediating capacity of trust. This refinement is particularly relevant in developing governance environments where institutional credibility may vary across municipalities.

From a practical perspective, the findings suggest that municipal digital reforms should prioritize not only technical upgrades but also communicative responsiveness and informational clarity. Investments in infrastructure must be accompanied by transparent procedures and consistent follow-up mechanisms. Trust emerges as a strategic asset in digital transformation; without it, technological improvements may yield diminishing returns. The results affirm that sustainable digital governance depends on the alignment of technical competence, informational transparency, and relational credibility. When these elements operate synergistically, citizen satisfaction becomes a natural outcome of coherent institutional performance.

The findings of this study resonate with broader patterns observed across ASEAN member states. Comparative research indicates that digital service quality consistently predicts satisfaction in Malaysia's local government portals. However, the magnitude of trust as a mediating variable varies depending on institutional stability. In Malaysia, relatively higher baseline trust levels mean that system quality directly influences satisfaction more strongly than through trust mediation. In Indonesia, where municipal governance capacity varies significantly, trust assumes a more pronounced mediating role. Vietnam's digital governance initiatives illustrate a similar dynamic. Rapid digitalization has improved administrative efficiency, yet citizens' satisfaction often depends on perceived transparency in procedural communication. Studies conducted in Ho Chi Minh City suggest that informational clarity strongly predicts trust, particularly in licensing services. This aligns with the present study's finding that information quality contributes to both trust and satisfaction.

Thailand provides another instructive comparison. Research on Thai municipal e-services demonstrates that responsiveness significantly influences satisfaction, especially in complaint-handling systems. The relational dimension appears central in contexts where citizens expect prompt administrative acknowledgment. The Indonesian case mirrors this pattern, underscoring the importance of interactive engagement rather than purely technical upgrades. In the Philippines, digital public services have expanded through local government portals, yet trust remains uneven due to historical governance challenges. Empirical findings indicate that system reliability enhances trust when accompanied by visible accountability measures. This observation reinforces the importance of transparency in strengthening satisfaction outcomes.

Across ASEAN, a common pattern emerges: digital service quality enhances satisfaction most effectively when accompanied by institutional credibility. Countries with stronger governance reputations exhibit more direct quality-satisfaction links, whereas contexts with fluctuating trust levels rely more heavily on relational mediation.

Municipal governments across Southeast Asia face common challenges: limited resources, digital literacy gaps, and institutional reform pressures. The findings of this study imply that policymakers should pursue integrated strategies. First, investment in system reliability must be continuous, as technical instability undermines both efficiency and trust. Second, procedural transparency should be prioritized through clear guidelines, real-time updates, and simplified documentation. Third, communication channels must remain accessible and responsive, ensuring that citizens perceive administrative attentiveness. Regional collaboration within ASEAN may facilitate knowledge sharing on digital governance standards. Establishing common benchmarks for service quality could strengthen institutional trust across member states.

E. CONCLUSION

This study set out to examine how digital service quality shapes citizen satisfaction in municipal e-government platforms, while exploring the mediating role of institutional trust. By integrating the Information Systems Success Model with trust theory, the research developed a framework that captures both technological and relational dimensions of digital governance performance. The empirical findings demonstrate that system quality, information quality, and service responsiveness collectively influence user satisfaction, both directly and indirectly through trust formation. The results suggest that technical reliability alone cannot fully account for positive citizen evaluations. When digital platforms operate smoothly, provide accurate procedural guidance, and respond promptly to user concerns, they generate perceptions of competence and integrity. These perceptions strengthen institutional trust, which subsequently amplifies satisfaction. The mediation effect observed in this study indicates that trust functions as a cognitive and relational filter through which service experiences are interpreted. Satisfaction therefore emerges not solely from operational efficiency but from the broader perception that the municipal authority is capable, transparent, and responsive.

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