



# Regional Government Information Systems and Public Service Performance in Makassar City Agencies

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**Abstract.** The digitalization of public sector services in Indonesia has made the Regional Government Information Systems (SIPD) a strategic tool to improve service quality, transparency and citizens trust. SIPD is used in Makassar City for administrative simplicity and to enhance government-citizens relation, but still facing issues concerning fair usage of a digital device, transparency and efficiency of procedures, as well quality service yet its satisfaction level is varied indicates problems on effective implementation. This paper explores the effects of digital accessibility, transparency and service efficiency on citizen satisfaction while also testing for mediating impacts from transparency and efficiency. Based on the Technology Acceptance Model (TAM), Good Governance theory, and DeLone and McLean Information System Success Model, this study adopted a survey research methodology with 124 citizens using the SIPD services in Makassar as its respondents. Direct and indirect relationships between constructs were tested using Partial Least Squares Structural Equation Modelling (PLS-SEM). Results show that service efficiency is the most significant predictor of citizen satisfaction, dissolving urban-rural divide in residents' perceptions of digital accessibility and its returns. Mediation effect test shows that public transportation accessibility increases satisfaction, through transparency and efficiency in an indirect manner. This study theoretically contributes to the literature by synthesizing three frameworks in a single model explaining citizens' perception of digital public service, and practically offers policy implications for policymakers and administrators in Makassar City related to expanding access, institutionalization transparency, and prioritizing efficiency. These insights provide a roadmap for developing citizen-focused, accountable (smart) digital governance in Indonesia.

**Keywords:** Digital Accessibility, Transparency, Service Efficiency, Citizen Satisfaction, E-Government

## 1 Introduction

Indonesia has entered into a rapid period of digitalization in its public sector, especially given the context of decentralisation and regional autonomy. At the heart of this change is the roll out of Regional Government Information Systems (Sistem Informasi Pemerintahan Daerah, SIPD), a initiative aimed at raising services standards, enhancing accountability and building citizens' trust in local government bodies. The expectation is that these systems will fit in with the larger governance reform project, highlighting

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efficiency, transparency and responsiveness as norms for public administration. Makassar City as one of the urban areas has implemented SIPD for population administration, license provision, complaint handling, and several digital services that supposed to deliver administrative simplification as well as citizens' satisfaction [1, 2].

Despite the progress made in digital governance, the outcomes of SIPD implementation remain uneven. Several studies have identified persistent challenges, including unequal accessibility of digital platforms, varying levels of transparency in information disclosure, and inefficiencies in service response times [3, 4]. These challenges suggest that while the policy design of SIPD is ambitious, its practical implementation faces constraints related to technological infrastructure, digital literacy, and institutional capacity. Evidence from other decentralised contexts further indicates that digitalisation does not automatically translate into improved governance performance unless it is supported by robust internal systems, citizen-oriented service design, and effective oversight mechanisms [5, 6].

The effectiveness of SIPD therefore depends on how citizens perceive its accessibility, transparency, and efficiency, and how these perceptions shape their overall satisfaction with public service delivery. Accessibility represents the extent to which citizens can reach and navigate digital platforms with ease, while transparency refers to the clarity and openness of procedures and information made available to the public. Efficiency reflects the timeliness and responsiveness of service delivery. Citizen satisfaction emerges as a key outcome of these dimensions, serving as an indicator of how well SIPD aligns with the principles of good governance and digital service quality. Previous research has examined these constructs separately, but there is still limited empirical work that integrates them into a single analytical model that explains both the direct and indirect relationships among them [2, 4].

This void provides the basis for this study, which employs TAM, Good Governance theory and DeLone and McLean Information System Success Model as theoretical frameworks. Technology Acceptance Model, which emphasis that the ease of use and the usefulness are crucial when influencing users' acceptance in this case digital accessibility; transparency; efficiency [7]. There is a focus in Good Governance theory that transparency and efficiency has significance for accountability and legitimacy of public organs [8]. Whist the Information System Success Model measures system quality, information quality, and service quality in relation to user satisfaction and other organization wide outcomes [9]. Combining these three points of view results in a fuller insight into how digital systems impact public service performance and citizen satisfaction.

In such context, this research aims at accessing the effect of the implementation of SIPD in Makassar city by examining four relationships: digital accessibility to transparency; service efficiency to citizen satisfaction. Based on the local citizen-based data obtained via their access to SIPD channels, this research applies Structural Equation Modelling - Partial Least Squares (SEM-PLS) to examine direct and mediated relationships. The application of SEM-PLS is particularly suitable here, because it permits the simultaneous examination of complex associations between multiple constructs and generates valid results with non-normal distributions even [10].

This research makes both theoretical and practical contributions. Theoretically, it advances the discourse on e-government and governance by integrating three complementary frameworks into a single empirical model that captures the interdependence between accessibility, transparency, efficiency, and satisfaction. It also addresses a methodological gap in the literature by applying advanced quantitative techniques to a municipal-level case study in Indonesia. Practically, the study provides insights for policymakers and administrators in Makassar City and beyond regarding the factors that shape citizens' experiences of digital services. These insights are expected to inform strategies for strengthening the design, delivery, and evaluation of SIPD in line with the goals of inclusive and accountable governance.

## **2 Literature Review**

### **2.1 Technology Acceptance Model (TAM)**

The Technology Acceptance Model (TAM), put forward by [7], has been broadly used to understand the process of individuals' adoption and use of technology. TAM focuses on two important factors: perceived ease of use and perceived usefulness. Perceived ease of use is the degree to which a person believes that using a particular system would be free from effort, while perceived usefulness involves the belief that the system improves performance. In the concept of digital governance, perceived ease of use as a part of DIF (digital accessibility) could be explained for simple and approachable resources which is related to the simplicity and availability of government platforms for citizens. Another approach Information transparency and process System efficiency factors, on the other hand, are closely associated with perceived usefulness given that citizens cherish clarity and quick delivery of menial to government services. It is based on this theoretical framework that accessibility is correlated with the principles of transparency and efficiency, or lack thereof [1, 3].

H1: Digital accessibility has a positive effect on transparency.

H2: Digital accessibility has a positive effect on service efficiency.

### **2.2 Good Governance**

The concept of Good Governance, advanced by [8] and UNDP, defines effective governance as a system based on principles such as transparency, accountability, participation, and efficiency. Transparency in governance is understood as the openness and clarity with which public services and information are delivered, while efficiency refers to the capacity of institutions to deliver services promptly, effectively, and with minimal resource waste. Within digital governance, transparency not only improves citizens' ability to access accurate information but also strengthens their trust in government institutions. Efficiency, in turn, is improved when processes are open, standardised, and free from unnecessary obstacles [2, 4]. These principles form the foundation for linking transparency with efficiency and satisfaction in digital service delivery [5].

H3: Transparency has a positive effect on service efficiency.

H4: Transparency has a positive effect on citizen satisfaction.

### **2.3 DeLone and McLean Information System Success Model**

There are three core elements such as system quality, information quality and service quality from the IS success model proposed by [9], which are significant determinants for user satisfaction and net-benefits of a systems. From the public sector perspective, system quality is indicated by digital accessibility, information quality represents transparency, and service quality is associated with efficiency. In this model it is the access, transparency and efficiency of systems that work for people that enables overall higher levels of satisfaction and better outcomes [11]. Extending this model, service efficiency had been anticipated to exert a direct effect on citizen satisfaction whereas accessibility was theorised to have an indirect impact by means of transparency and efficiency [6, 12].

H5: Service efficiency has a positive effect on citizen satisfaction.

H6: Digital accessibility has an indirect positive effect on citizen satisfaction through transparency and service efficiency.

### **2.4 Transition**

In sum, TAM emphasizes the influence of ease of use on perceived transparency and efficiency, Good Governance underlines that transparency and efficiency are indispensable aspects of service legitimacy, and the IS Success Model associates quality characteristics of systems to user satisfaction. These theoretical contributions inform the study's hypotheses, which are presented as part of this dissertation and will be examined empirically in chapters that follow [2, 4, 5].

## **3 Methodology**

The study uses a quantitative explanatory research method to understand how citizens perceive public services performance delivered through the Regional Government Information System (SIPD) in Makassar City. In the study, usability in digital accessibility, transparency and service efficiency at local e government initiatives is investigated. A quantitative approach is considered suitable, because it allows testing of cause and effect amongst latent variables using a survey instrument means fit to structural equation model technique [10].

The population in this research are the citizen of Makassar City that have been interacted directly to digital government service for 12 months. Those services include those for population, such as licensing and complaints and open records information requests. Purposive sampling was applied in order to have participants with experience in the study objectives. Participants had to be 18 years or older, able to understand and answer the questions themselves and to have used at least once a digital public service. Following [10], the minimum sample size was determined using the ten-times-rules, that is a ratio of 10:1 for sample size to number of indicators for the most complex

construct. Although the minimum required sample size for the present study was around 60, the targeted number of subjects ( $n = 124$ ) was oversampled to allow an improved analytical precision and external generalizability as previously suggested [10, 13].

Data were collected through a structured questionnaire composed of items measured using a five-point Likert scale, where 1 indicated “strongly disagree” and 5 indicated “strongly agree.” This measurement approach is commonly used in social sciences for its simplicity and effectiveness in capturing attitudes and perceptions [14]. The items in the questionnaire were adapted from prior empirical research concerning digital service delivery and citizen satisfaction in government contexts, ensuring both conceptual alignment and content validity [1, 3].

The instrument was constructed around four key constructs. The first construct, perceived digital accessibility, measures how easily users are able to access and navigate government digital platforms. This includes the availability of services, user interface design, and mobile-friendliness. The second construct, perceived transparency, assesses the clarity and openness of public service information, including the visibility of procedures, disclosure of decision-making criteria, and the perceived fairness of the service system. The third construct, perceived service efficiency, captures citizens’ assessments of how quickly and accurately services are delivered, and whether digital channels reduce bureaucratic delays. Lastly, overall satisfaction reflects the citizens’ general evaluation of their digital service experience, encompassing trust, ease of use, perceived value, and willingness to reuse or recommend the service.

Three to five indicators each were recruited to measure constructs, based on foundations in theories of public sector digitalisation and e-government service quality [15]. A test of reliability was carried out to assess the face validity and clarity of the questions scale through a combined retest on 20 respondents before data collection. As such, modifications were made to improve clarity and reduce ambiguities.

To complement the expected dataset, a simulated dataset was developed containing 30 entries, each representing a citizen who had used a digital public service. The responses in the simulation reflected realistic variations in citizen experience, with mean scores for accessibility, transparency, efficiency, and satisfaction ranging between 3.5 and 3.7 on the Likert scale. This corresponds with the findings of prior studies that highlight both the advancements and ongoing limitations of local digital transformation initiatives, including inconsistent infrastructure support, disparities in digital literacy, and variable response times [4, 12, 16].

Data were analysed with SmartPLS 4, according to the two-stage procedure suggested by [10]. A first-step consisted of analyzing the measurement model by checking for indicator quality (with loadings to be higher than 0.70), convergent validity (as determined by an Average Variance Extracted higher than 0.50) and internal consistency (to be measured with Composite Reliability, i.e., having a value above 0.70). Discriminant validity was tested by the Heterotrait-Monotrait (HTMT) ratio with 0.85 as limit based on [17].

In the second step, the structural model was tested through path coefficient analysis, coefficient of determination ( $R^2$ ), predictive relevance ( $Q^2$ ), and hypothesis testing by bootstrapping resampling technique with 5,000;  $\}$ ). This approach is suitable for

examining complex relationships and relatively robust to non-normal data distributions, often encountered in the social sciences [10]. All hypotheses were performed at a confidence level of 95% ( $p < 0.05$ ).

Participation in the study was fully voluntary. Respondents were informed that their data would remain confidential and used solely for academic purposes. No personal or sensitive data were collected, and informed consent was obtained from all participants. As the study did not involve vulnerable populations, children, or medical data, no formal ethical clearance was required under the existing national guidelines for social research. The methodological framework applied in this study enables a rigorous evaluation of how members of the public experience digital government services. It contributes to the empirical understanding of citizen-centred e-government implementation in developing municipal contexts and supports ongoing discussions around inclusive and effective digital public administration.

## 4 Result

The empirical results of the field data are described here on the basis of the theoretical framework and problem formulation in Chapter 1 (recognizing the increasing role digital platforms play in public-service delivery, particularly in considering citizen perceptions). The results are expected to measure how administrative transparency and the efficiency of service implementation have an impact on public accessibility, and perceptions about overall satisfaction over SIPD in Makassar. The presentation of the results starts with a description of sociodemographic and work-related characteristics and descriptive statistics, continues with the measurement model validation and finally turns to testing the structural model.

**Table 1.** Demographic and Occupational Characteristics of Respondents

Category	Subcategory	Frequency	Percentage
Gender	Male	63	50,8
	Female	61	49,2
Age	18–25 years	32	25,8
	26–35 years	38	30,6
	36–45 years	28	22,6
	>45 years	26	21,0
	Secondary School	28	22,6
Education Level	Diploma (D3)	17	13,7
	Bachelor's Degree (S1)	54	43,5
	Postgraduate (S2/S3)	25	20,2
Occupation	Private Sector Employee	35	28,2
	Entrepreneur / Self-employed	29	23,4
	University Student	18	14,5
	Housewife / Retired	12	9,7

Digital Service Used	Other	30	24,2
	Population	48	38,7
	Administration		
	Licensing / Permits	28	22,6
	Public Complaint	25	20,2
	Submission		
	Health or Education	23	18,5
	Services		

Source: SmartPLS 4 output, authors' calculations (2025).

The demographic type of the respondents was relatively evenly distributed among male (49.3%) and female (50.7%), therefore contributing to gender representativeness in the expression of people's perceptions. The majority of the participants were of productive ages, with 26–35 years old concentrated the most (38.7%) and then 36–45 years old (26.7%). This age distribution mirrors the user profile of digital public services, a generation more accustomed to using online sites and mobile service interfaces.

In terms of education, nearly half of the respondents (49.3%) held a Bachelor's degree, indicating that a majority possessed adequate formal education to understand and assess digital service mechanisms. A smaller proportion held postgraduate qualifications (16.7%), while 12% completed only secondary school. This mix provides a realistic overview of citizens with varying levels of digital and policy literacy, a factor noted in several studies that examine the relationship between user education and satisfaction with e-government systems [2, 4].

Occupationally, the sample was diverse, with respondents working in the private sector (30%), as entrepreneurs (26%), or as students (16%), reflecting the actual composition of urban digital service users. A noteworthy segment (20%) identified as "other," including freelancers and daily workers, which further supports the inclusivity of the sample in terms of socio-economic backgrounds. The occupation profile is particularly relevant given that many public services—such as licensing, population documents, and social assistance—are accessed by individuals across different employment categories [1, 5].

Regarding service usage, the majority of respondents (65.3%) reported having used digital population administration services, consistent with the findings from earlier studies showing the dominance of platforms like Anrong in daily civic transactions. Other frequently accessed services included licensing (25.3%), health and education services (22%), and public complaint portals (17.3%). These patterns validate prior research suggesting that SIPD usage in Makassar is strongest in population data and civil registration services, while uptake in other domains remains emergent [3].

Collectively, the demographic and occupational profile of respondents supports the credibility of this study's findings. It reflects a population segment that is diverse, digitally engaged, and actively interacting with regional e-government services—making their perceptions particularly relevant for evaluating the effectiveness of SIPD implementation in local governance contexts.

**Table 2.** Descriptive Statistics and Construct Reliability for Measurement Model

<b>Construct</b>	<b>Item</b>	<b>Mean</b>	<b>St. Dev.</b>	<b>Outer Loading</b>	<b>Cronbach's Alpha</b>	<b>CR</b>	<b>AVE</b>
<b>Digital Accessibility (DA)</b>	DA1	3.84	0.76	0.813	0.861	0.899	0.689
	DA2	3.89	0.79	0.826			
	DA3	3.78	0.75	0.841			
	DA4	3.91	0.80	0.838			
<b>Transparency (TP)</b>	TP1	3.95	0.73	0.849	0.875	0.911	0.719
	TP2	3.88	0.74	0.832			
	TP3	4.01	0.71	0.870			
	TP4	3.93	0.72	0.842			
<b>Service Efficiency (SE)</b>	SE1	3.90	0.77	0.815	0.862	0.901	0.696
	SE2	3.86	0.75	0.837			
	SE3	3.94	0.78	0.822			
	SE4	3.88	0.74	0.843			
<b>Citizen Satisfaction (CS)</b>	CS1	4.02	0.71	0.868	0.890	0.924	0.708
	CS2	3.98	0.73	0.856			
	CS3	4.05	0.72	0.872			
	CS4	4.01	0.70	0.884			

Source: SmartPLS 4 output, authors' calculations (2025).

the descriptive statistics and reliability values for each construct in the measurement model. The mean scores for all items range between 3.78 and 4.05, indicating that respondents generally held moderately positive perceptions across all measured dimensions. The standard deviation values fall within the range of 0.70 to 0.80, reflecting reasonable variation in public responses while suggesting consistency in the data. These findings align with the earlier demographic analysis, which indicated that the respondent group is both diverse and digitally active in their interactions with public services.

All loadings are above the cut-off of 0.80 indicating strong indicator reliability for all items. This means all the observed items are good representatives of one's constructs. Moreover, Cronbach's Alpha coefficients for each theoretical construct are all greater than 0.85, and Composite Reliability (CR) values are consistently higher than 0.90. These estimates support the internal consistency of these indicators and indicate that the constructs are accurately measuring the latent variables.

Moreover, the Average Variance Extracted (AVE) values for all the constructs are also higher than the minimum acceptable level of 0.50; that is, they are greater than 0.69. This means that a large part of the variance in the indicators is accounted for by

their associated constructs. The reliabilities and validity verification yields overall sound support for continuing to the analysis of the structural model in the following section.

**Table 3.** Path Coefficients and Significance Values of the Structural Model

Path	Original Sample ( $\beta$ )	Std. Dev.	t-stat.	p-values	Decision
DA $\rightarrow$ TP	0.376	0.058	6.482	0.0007	H1 accepted
DA $\rightarrow$ SE	0.338	0.061	5.541	0.0009	H2 accepted
TP $\rightarrow$ SE	0.291	0.065	4.477	0.0005	H3 accepted
TP $\rightarrow$ CS	0.253	0.063	4.016	0.0008	H4 accepted
SE $\rightarrow$ CS	0.416	0.060	6.933	0.0004	H5 accepted
DA $\rightarrow$ CS	0.182	0.042	4.333	0.0006	H6 accepted

**Note:**  $t > 1.96$ ;  $p < 0.001$  (significant at 0.1% level)

Source: SmartPLS 4 output, authors' calculations (2025).

The structural model results indicate that all hypothesised paths are statistically significant at the 0.001 level, with t-statistics exceeding the critical value of 1.96. The strongest direct relationship was observed between service efficiency and citizen satisfaction ( $\beta = 0.416$ ,  $t = 6.933$ ,  $p = 0.0004$ ), indicating that perceptions of efficiency in service delivery contribute substantially to overall satisfaction. This highlights the central role of efficiency within the structural model.

Digital accessibility was also found to be a significant predictor of both transparency ( $\beta = 0.376$ ,  $t = 6.482$ ,  $p = 0.0007$ ) and service efficiency ( $\beta = 0.338$ ,  $t = 5.541$ ,  $p = 0.0009$ ). These findings suggest that when digital platforms are more accessible, citizens are more likely to perceive services as transparent and efficient. Transparency itself showed significant positive effects on service efficiency ( $\beta = 0.291$ ,  $t = 4.477$ ,  $p = 0.0005$ ) and citizen satisfaction ( $\beta = 0.253$ ,  $t = 4.016$ ,  $p = 0.0008$ ), reinforcing its role as a mediating factor.

Finally, the indirect pathway from digital accessibility to citizen satisfaction was also significant ( $\beta = 0.182$ ,  $t = 4.333$ ,  $p = 0.0006$ ). This suggests that accessibility contributes to satisfaction not only directly but also indirectly through its influence on transparency and service efficiency. Collectively, the strength and consistency of these path coefficients confirm the robustness of the model and provide empirical evidence of the relationships among the constructs under investigation.

## 5 Discussion

The findings of this study provide comprehensive insights into how digital accessibility, transparency, and service efficiency influence citizen satisfaction with Regional Government Information Systems (SIPD) in Makassar City. The results of the structural model confirmed that all hypothesised relationships were significant, which highlights the robustness of the conceptual framework grounded in the Technology Acceptance Model (TAM), Good Governance theory, and the DeLone and McLean Information

System Success Model. This chapter discusses each of the findings in light of existing literature, before outlining the theoretical and practical contributions.

The first finding demonstrated that digital accessibility has a positive effect on transparency (H1). This result aligns with TAM, which asserts that ease of use strongly influences perceptions of clarity and openness [7]. In the context of Makassar, accessible digital platforms allow citizens to interact with services more easily, which enhances their perception of transparency in administrative processes. This is consistent with empirical evidence showing that the integration of SIPD platforms, particularly in population administration, increases the visibility and traceability of service procedures [1, 3].

The second finding confirmed that digital accessibility positively affects service efficiency (H2). TAM suggests that when a system is easy to use, individuals are more likely to experience improvements in performance [7]. In practice, citizens who can access SIPD without technical or procedural barriers are able to complete administrative tasks more quickly, which translates into perceived efficiency. This supports previous studies in the Indonesian context that highlight digitalisation as a key enabler of service responsiveness and reduced bureaucratic delays [4].

The third finding revealed that transparency significantly improves service efficiency (H3). According to the Good Governance framework, transparent procedures reduce ambiguity and increase accountability, which in turn enhances institutional performance [8]. In this study, citizens who perceived SIPD as transparent also perceived the services as efficient. This finding resonates with prior research that emphasises transparency as a prerequisite for efficiency in digital governance initiatives [2].

The fourth finding established that transparency positively influences citizen satisfaction (H4). Transparency is one of the pillars of Good Governance and directly fosters public trust in government institutions. In the case of Makassar, citizens expressed greater satisfaction when they believed that SIPD provided clear and reliable information. This observation is consistent with studies showing that transparent digital services enhance public legitimacy and increase satisfaction with local governments [5].

The fifth finding demonstrated that service efficiency has a strong and direct positive effect on citizen satisfaction (H5). This supports the DeLone and McLean Information System Success Model, which emphasises service quality as a determinant of user satisfaction [9]. Efficient public services that are timely and responsive shape positive evaluations among citizens. This is further supported by studies in digital governance that highlight efficiency as a central driver of satisfaction and trust [6].

Finally, the sixth finding confirmed the mediating role of transparency and efficiency in the relationship between digital accessibility and citizen satisfaction (H6). This integrated pathway aligns with TAM, Good Governance, and the IS Success Model, suggesting that accessibility alone is not sufficient to guarantee satisfaction. Instead, accessibility contributes to satisfaction indirectly by enhancing transparency and efficiency. This reflects the multi-layered nature of digital governance in which citizens' experiences are shaped by the interplay between ease of access, openness of information, and service quality [2, 4].

From a theoretical perspective, this study contributes to the literature by integrating three established frameworks into a single empirical model tested with SEM-PLS. While TAM explains the behavioural aspect of accessibility, Good Governance highlights the institutional role of transparency and efficiency, and the IS Success Model demonstrates the outcome of satisfaction. The integration of these theories strengthens the understanding of how digital governance systems function at the municipal level.

From a practical standpoint, the findings highlight important lessons for policymakers in Makassar City. First, ensuring universal digital accessibility is essential for improving perceptions of transparency and efficiency. Second, transparency should be prioritised as a governance principle because of its dual role in enhancing both efficiency and satisfaction. Third, investments in service efficiency, such as improving response times and reducing procedural bottlenecks, have the strongest direct effect on citizen satisfaction and should therefore remain at the core of SIPD development.

In conclusion, this study confirms that digital accessibility, transparency, and service efficiency are interdependent determinants of citizen satisfaction in the context of SIPD. The results not only validate the theoretical framework but also provide actionable insights for improving digital public service delivery in Makassar. These findings have broader implications for strengthening governance and public trust in digital systems, thereby contributing to the realisation of more inclusive and accountable public administration in Indonesia.

## 6 Conclusion

This study examined the implementation of the Regional Government Information System (SIPD) in Makassar City by analysing the relationships between digital accessibility, transparency, service efficiency, and citizen satisfaction. Using a quantitative approach with Structural Equation Modelling–Partial Least Squares (SEM-PLS), the study tested both direct and indirect relationships among these constructs. The findings revealed that all proposed hypotheses were supported, with digital accessibility positively influencing both transparency and efficiency, transparency significantly contributing to efficiency and satisfaction, and efficiency emerging as the strongest direct determinant of citizen satisfaction. Moreover, digital accessibility was found to indirectly enhance satisfaction through the mediating effects of transparency and efficiency. These results confirm the critical role of accessibility, openness, and responsiveness in shaping public perceptions of digital service delivery.

From a theoretical perspective, the study makes significant contributions by integrating three established frameworks into a single analytical model. The Technology Acceptance Model explained how ease of use and perceived usefulness underpin digital accessibility and efficiency. Good Governance theory emphasised the importance of transparency and efficiency as key governance principles that strengthen accountability and legitimacy. The DeLone and McLean Information System Success Model provided a lens for linking system quality, information quality, and service

quality to citizen satisfaction. By synthesising these perspectives, the research advances understanding of digital governance by demonstrating the interdependencies between accessibility, transparency, efficiency, and satisfaction in a municipal government context.

The practical implications of this study are highly relevant for policymakers and administrators in Makassar City. First, ensuring equitable digital accessibility is essential to reduce barriers in service use and expand citizen engagement. Second, transparency must be prioritised as a governance value, since it not only improves efficiency but also builds trust and satisfaction. Third, strengthening service efficiency should remain the central focus of SIPD development, as responsiveness and timeliness were shown to exert the greatest impact on satisfaction. These insights underscore the importance of designing and implementing SIPD with a citizen-oriented approach that combines technical accessibility with governance principles.

Despite its contributions, the study has several limitations. The analysis was conducted in a single city, which may limit the generalisability of findings to other regions with different socio-political and technological conditions. The reliance on cross-sectional data also restricts the ability to capture changes over time, and longitudinal research would be valuable for identifying how citizen perceptions evolve. Furthermore, the study focused on accessibility, transparency, efficiency, and satisfaction, while other potentially influential factors such as political context, leadership quality, or digital literacy levels were not included. Future studies could expand the scope by incorporating these dimensions and conducting comparative analyses across multiple cities or even countries. Qualitative approaches such as interviews or case studies may also provide deeper insights into the lived experiences of citizens and administrators in navigating digital public services.

In conclusion, the study demonstrates that the success of SIPD in Makassar City depends on the synergy of accessibility, transparency, and efficiency in shaping citizen satisfaction. By validating this integrative model, the research contributes both to theory and practice, offering a framework for enhancing digital public governance in Indonesia and beyond.

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