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Data-Driven Public Management and Citizen Satisfaction Improvement Smart City Governance Frameworks

Ethan Jonatan Chua[1]

[1]School of Social Sciences, Singapore Management University, Singapore

*Corresponding Author: Ethan Jonatan Chua
E-mail: etnsoingl@gmail.com

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Abstract

This research looks at how data-driven public management affects citizen satisfaction in the context of Singapore's smart city governance. This research is designed to provide an analysis of the relationship between the four components of digital responsiveness, data integration, evidence-based decision making and inter-agency coordination and the public perception of governance quality and administrative efficiency. Data from a survey of 250 users of digital public services in Singapore was used in a quantitative explanatory approach. Data was analyzed using descriptive statistics, classical assumption test, validity and reliability test, and multiple regression analysis. The results show that all dimensions of data-driven public management have a significant impact on citizen satisfaction. Digital responsiveness was the most important factor, followed by data integration, evidence-based decision making and inter-agency coordination. The findings suggest that the benefits of adopting integrated digital governance systems in smart cities include increased access to services, enhanced administrative efficiency, and greater public trust. The study also shows that, along with the use of technology, institutional coordination and citizen-centric governance are essential for successful smart governance. The results offer both theoretical and practical lessons for governments aiming to enhance sustainable and citizen-focused digital governance systems.

INTRODUCTION

The rapid advancement of digital technology has transformed public administration systems across the world, encouraging governments to adopt data-driven governance models that prioritize efficiency, responsiveness, transparency, and citizen-centered public services. In recent years, smart city governance has emerged as a strategic framework through which governments integrate digital technologies, big data analytics, artificial intelligence, and interconnected administrative systems into urban management and public service delivery (Das, 2024; Van Hoang, 2024). The increasing complexity of urban problems, including population growth, mobility challenges, environmental sustainability, and service accessibility, has intensified the need for governments to develop evidence-based governance systems capable of

responding to citizens' needs in real time. Within this context, Singapore has become one of the most prominent examples of successful smart city governance due to its comprehensive Smart Nation initiative, advanced digital infrastructure, and highly integrated public administration system (Kaiser, 2024; Balaji, 2025; Sharmin & Chowdhury, 2025). Scholars have argued that Singapore's governance model demonstrates how digital transformation can strengthen administrative efficiency and improve public satisfaction through data-driven policy making and integrated service delivery systems (Meijer & Bolívar, 2021; Anthopoulos, 2020; Magakwe, 2025; Damiyano, 2022; Karakolias, 2024; Balaji, 2025).

The concept of data-driven public management reflects a broader transition from traditional bureaucratic administration toward digital-era governance characterized by data integration, collaborative institutions, and predictive decision-making mechanisms (Zhang & Shahid, 2026; Harake, 2025; Egala et al., 2025). Contemporary public management literature emphasizes that governments increasingly rely on digital data ecosystems to improve policy formulation, monitor public service performance, and enhance citizen engagement (Babazadeh, 2025; Egba et al., 2025; Jiang & Fan, 2025). According to recent studies, data-driven governance enables public institutions to optimize resource allocation, identify social problems more accurately, and improve administrative responsiveness through real-time analytics and digital platforms (Criado et al., 2021). Furthermore, the integration of big data into governance systems contributes to more adaptive and evidence-based public management, allowing governments to anticipate public demands and design personalized services more effectively (Janssen et al., 2020; Ejjami, 2025; Anupam & Mustafa, 2025). Consequently, the effectiveness of modern public administration is increasingly evaluated based on its capacity to transform digital information into governance outcomes that enhance public trust and citizen satisfaction.

Singapore represents a particularly significant case for examining the relationship between data-driven public management and citizen satisfaction because the country has consistently ranked among the world's leading digital governments (Hong et al., 2025; Lee, 2025). Through the Smart Nation initiative, the Singaporean government has implemented integrated digital governance platforms such as Singpass, Smart Nation Sensor Platform, and e-government portals that connect multiple public institutions into a centralized digital ecosystem. These initiatives facilitate seamless public service delivery, administrative coordination, and data-sharing mechanisms among government agencies. Research indicates that Singapore's digital governance strategy has contributed substantially to administrative efficiency, public service accessibility, and citizen convenience (Ho, 2021; Kapesa, 2025). In addition, the use of digital technologies in transportation management, healthcare systems, public security, and urban planning has strengthened the government's ability to provide responsive and citizen-oriented governance solutions (Kong & Woods, 2022; Nguyen & Csaba, 2025; Mako, 2025). Such developments demonstrate that data-driven governance is no longer limited to technological modernization but has become an essential instrument for improving governance quality and citizen experiences.

While the achievements, the introduction of smart city governance also poses some institutional and managerial issues. As digital governance becomes more common, there are concerns about data privacy, cybersecurity, algorithmic bias, digital inequality, and how citizens are feeling about government institutions. Recent research reveals that, apart from the technological level, smart governance effectiveness relies on the coordination of institutions, organization adaptability, and citizen involvement (Gil-Garcia et al., 2022). Furthermore, governance fragmentation and loss of trust in digital public services can be caused by too much dependence on

the technical system without inclusive governance arrangements. For societies that are highly digitalised like Singapore, citizens' satisfaction will depend on government's ability to strike a balance between technological innovation, transparency and accountability, as well as ethical governance practices. The need to discuss this issue is even more pronounced given that citizens' perceptions of governance quality are highly shaped by their experiences of the availability of public services, responsiveness of public service delivery and confidence in public service institutions (Hamzah et al., 2026; Abdi et al., 2025).

Smart city governance, e-government implementation and digital public administration have been discussed from various aspects in previous research. There are some scholars who are concerned mainly with technological infrastructure and digital innovation as the drivers for the success of a smart city: Anthopoulos (2020), Bibri and Krogstie (2021) and Van de Walle and Migchelbrink (2022). Other research focuses on the use of big data analytics for public policy decisions and effectiveness in public administration (Criado et al., 2021; Hossin et al., 2023; Anupam & Mustafa, 2025). In the field of citizen satisfaction research, the role of service quality, trust, transparency, and responsiveness is also significant in determining citizens' perceptions regarding the government's performance (Nam & Pardo, 2021). While these studies make important contributions to the field of understanding digital governance, there is a lack of studies that link the analysis of technological implementation with citizen satisfaction. Therefore, less focus has been placed on the direct effects of data-based public management mechanisms on citizens' satisfaction in the context of smart city governance systems.

While there is much existing research that focuses on technology aspects of governance transformation, there is less that focuses on the managerial and institutional aspects. Most research addresses issues of development of digital infrastructure, capability to innovate and integration of information systems, without paying enough attention to how public management practices affect effectiveness of governance and citizen outcomes. Much like the global research on smart governance, research on Singapore's smart governance tends to focus on technological development and digital policy innovation with insufficient efforts devoted to analysing how data-driven administrative coordination might have an impact on citizens' satisfaction. Consequently, there is a clear need for more research on how the public management theory and smart city governance theory can be integrated, especially in the context of smart city governance systems which are highly digitalized.

Another limitation within previous research is the tendency to adopt technologically deterministic perspectives that assume digital innovation automatically generates positive governance outcomes. In reality, the success of smart governance depends heavily on organizational capacity, inter-agency collaboration, policy coherence, and institutional trust. Data-driven governance systems require effective managerial integration to ensure that technological innovation translates into improved public service quality and citizen experiences. Therefore, understanding the relationship between data-driven public management and citizen satisfaction requires a multidimensional governance perspective that combines technological capability with institutional effectiveness and citizen-oriented administrative practices (Aydin, 2026; Irawan, 2025).

This study addresses these limitations by examining the influence of data-driven public management on citizen satisfaction improvement within Singapore’s smart city governance frameworks. Unlike previous studies that predominantly focus on technological infrastructure or digital innovation, this research emphasizes the managerial and governance dimensions of smart city administration. Specifically, the study investigates how data integration, evidence-based decision making, inter-

agency coordination, and digital public service responsiveness contribute to citizen satisfaction in Singapore's governance system. The novelty of this study lies in its integration of data-driven public management theory with smart city governance and citizen satisfaction analysis within a highly advanced digital governance environment. The research contributes theoretically by extending digital-era governance discourse through the incorporation of institutional and managerial perspectives into smart city studies. Practically, the findings provide policy insights for governments seeking to strengthen citizen-centered governance through integrated digital public management strategies. Therefore, the primary objective of this research is to analyze the role of data-driven public management in improving citizen satisfaction within Singapore's smart city governance frameworks while identifying governance mechanisms that support effective and sustainable digital public administration.

METHODS

Research Design

This study employed a quantitative explanatory research design to examine the influence of data-driven public management on citizen satisfaction within Singapore's smart city governance frameworks. The quantitative approach was selected because the research aimed to analyze causal relationships among governance variables and measure the extent to which data-driven management practices contribute to public satisfaction outcomes. According to Creswell and Creswell (2021), explanatory quantitative research is appropriate for identifying relationships between variables through statistical analysis and empirical measurement. The study adopted a cross-sectional survey design in which data were collected from respondents at a single point in time to capture perceptions regarding digital public governance and administrative service quality in Singapore.

The conceptual framework of the study was developed based on digital-era governance theory, smart city governance literature, and citizen satisfaction models. The independent variable consisted of data-driven public management dimensions, including data integration, evidence-based decision making, digital service responsiveness, and inter-agency coordination. Meanwhile, citizen satisfaction functioned as the dependent variable measured through indicators of service accessibility, efficiency, transparency, reliability, and public trust. The proposed research framework is presented in Table 1.

Table 1. Research Variable Framework

Variable	Indicators	References
Data-Driven Public Management	Data integration, digital responsiveness, evidence-based policy, inter-agency coordination	Criado et al. (2021); Gil-Garcia et al. (2022)
Citizen Satisfaction	Service quality, accessibility, efficiency, transparency, trust	Nam & Pardo (2021); Ho (2021)

Table 1 illustrates the relationship between governance management dimensions and citizen satisfaction indicators used in this study. The framework served as the basis for questionnaire development and statistical analysis.

Research Context and Population

The research was conducted in Singapore because the country represents one of the world's leading smart city governance models through its Smart Nation initiative and highly integrated digital public administration system. Singapore provides an appropriate empirical setting due to its extensive implementation of digital governance platforms, centralized public services, and advanced urban management

technologies. The study focused on citizens who actively utilized digital public services such as Singpass, e-government portals, smart transportation systems, and online administrative platforms.

The population of the study consisted of Singaporean residents who had experience accessing digital public services within the previous twelve months. A purposive sampling technique was employed to ensure that respondents possessed sufficient understanding and experience regarding smart governance services. According to Etikan and Bala (2020), purposive sampling is suitable when researchers seek participants with specific characteristics relevant to the research objectives. A total of 250 respondents were selected as the research sample, which satisfied the minimum requirements for multivariate statistical analysis.

Data Collection Techniques

Primary data were collected through a structured questionnaire distributed online using digital survey platforms. The questionnaire utilized a five-point Likert scale ranging from strongly disagree to strongly agree. Online distribution was considered appropriate because the respondents were users of digital governance services and familiar with technology-based communication systems. The questionnaire items were adapted from previous international studies concerning smart governance, digital public management, and citizen satisfaction to ensure construct consistency and conceptual validity (Janssen et al., 2020; Meijer & Bolívar, 2021). In addition to primary data, secondary data were obtained from government reports, Smart Nation policy documents, digital governance publications, and international governance indices related to Singapore's smart city development. These secondary sources were used to strengthen contextual analysis and support interpretation of empirical findings.

Data Analysis Techniques

The collected data were analyzed using descriptive statistics and inferential statistical techniques. Descriptive analysis was conducted to explain respondent characteristics and general perceptions regarding smart governance implementation in Singapore. Subsequently, multiple regression analysis was employed to examine the influence of data-driven public management dimensions on citizen satisfaction. Statistical analysis was performed using SPSS software. Before hypothesis testing, several classical assumption tests were conducted, including normality, multicollinearity, and heteroscedasticity tests, to ensure the robustness of the regression model. According to Hair et al. (2021), these procedures are essential for ensuring statistical accuracy and minimizing estimation bias in quantitative research.

Validity and Reliability

To ensure research quality, validity and reliability tests were conducted for all questionnaire instruments. Construct validity was assessed using Pearson product-moment correlation analysis, where items with correlation coefficients above the minimum threshold were considered valid. Reliability testing employed Cronbach's Alpha coefficient, with values above 0.70 indicating acceptable internal consistency (Taber, 2020). The results demonstrated that all measurement indicators satisfied validity and reliability standards, indicating that the research instrument was appropriate for empirical analysis. Furthermore, methodological triangulation was applied through the integration of survey findings and secondary governance documents to strengthen the credibility of the study. This approach enhanced analytical consistency and reduced potential bias in interpreting smart governance practices within Singapore's public administration system.

RESULTS AND DISCUSSION

This section presents the empirical findings of the study concerning the influence of data-driven public management on citizen satisfaction within Singapore's smart city governance frameworks. The analysis is organized systematically to explain the relationship between governance management dimensions and public perceptions of digital public services. Before discussing the main analytical findings, this section first presents the contextual overview of Singapore's smart governance environment and respondent characteristics to provide a comprehensive understanding of the empirical setting of the study.

The results are divided into several analytical subsections. The first subsection explains demographic characteristics and patterns of digital public service usage among respondents. The second subsection discusses descriptive statistical analysis related to data-driven public management variables and citizen satisfaction indicators. Subsequently, validity, reliability, and classical assumption tests are presented to ensure the robustness of the research instrument and statistical model. Finally, regression analysis and hypothesis testing are discussed to explain the extent to which data-driven governance dimensions affect citizen satisfaction within Singapore's smart city governance system.

In addition to primary survey data, secondary data obtained from Singapore Smart Nation reports and international digital governance publications indicate that Singapore remains one of the highest-performing countries in digital government implementation. The country's integrated digital governance system, centralized public administration services, and smart urban management platforms provide an important institutional foundation supporting citizen-oriented governance and administrative efficiency. These contextual findings strengthen the relevance of examining how data-driven governance practices contribute to citizen satisfaction in highly digitalized public administration environments.

Respondent Characteristics

The study involved 250 respondents consisting of Singaporean residents who actively utilized digital public services during the previous twelve months. Respondents were selected based on their experience accessing smart governance systems such as Singpass, e-government platforms, digital transportation services, and online public administration portals. The demographic profile of respondents is presented in Table 2.

Table 2. Respondent Demographic Characteristics

Characteristics	Category	Frequency	Percentage (%)
Gender	Male	118	47.2
	Female	132	52.8
Age	20–30 years	94	37.6
	31–40 years	87	34.8
	41–50 years	46	18.4
	>50 years	23	9.2
Education	Diploma	51	20.4
	Bachelor	129	51.6
	Postgraduate	70	28.0
Frequency of Digital Service Usage	Weekly	164	65.6
	Monthly	86	34.4

Source: Processed survey data, 2026

Table 2 demonstrates that the majority of respondents were female (52.8%), while most respondents belonged to the productive age category between 20 and 40 years old. The educational background of respondents also indicates relatively high levels of digital literacy because more than half possessed bachelor degrees. Furthermore, approximately 65.6% of respondents reported using digital public services weekly, reflecting the intensive integration of smart governance services into citizens' daily administrative activities. To strengthen the contextual understanding of respondent experience, the study also examined the duration of digital public service usage among respondents. The findings are presented in Table 3.

Table 3. Duration of Digital Public Service Usage

Duration of Usage	Frequency	Percentage (%)
Less than 1 year	39	15.6
1–3 years	121	48.4
More than 3 years	90	36.0

Source: Processed survey data, 2026

The findings indicate that most respondents had utilized digital governance services for more than one year, suggesting sufficient familiarity with Singapore's smart governance ecosystem. Nearly half of respondents had used digital public services for one to three years, while 36% reported more than three years of usage experience. These findings strengthen the credibility of respondents' perceptions regarding governance quality and citizen satisfaction.

Descriptive Analysis of Data-Driven Public Management

Descriptive statistical analysis was conducted to evaluate respondents' perceptions regarding the implementation of data-driven public management within Singapore's smart city governance framework. The analysis covered four major dimensions: data integration, evidence-based decision making, digital responsiveness, and inter-agency coordination. The results are presented in Table 4.

Table 4. Descriptive Statistics of Data-Driven Public Management

Variable Indicators	Mean	Standard Deviation
Data integration efficiency	4.31	0.58
Evidence-based decision making	4.26	0.63
Digital service responsiveness	4.38	0.54
Inter-agency coordination	4.19	0.67
Overall Mean	4.29	0.61

Source: Processed survey data, 2026

Table 4 demonstrates that respondents generally perceived Singapore's data-driven governance system positively, as indicated by the overall mean score of 4.29. Among all governance dimensions, digital service responsiveness obtained the highest mean score of 4.38. This finding suggests that citizens considered Singapore's digital public services highly responsive, adaptive, and efficient in addressing administrative needs. Respondents highlighted that digital platforms simplified service procedures, reduced waiting times, and facilitated more convenient interactions with government institutions.

Data integration efficiency also achieved a high evaluation with a mean score of 4.31, indicating that respondents perceived strong coordination among public institutions through integrated administrative systems. The use of centralized digital identity systems and interconnected governance databases significantly improved service continuity and administrative consistency. Meanwhile, evidence-based decision making achieved a mean score of 4.26, suggesting that citizens recognized the

government's capability to utilize digital information and analytical systems in policy formulation processes. Inter-agency coordination received the lowest mean score among governance dimensions, although the result remained within the highly positive category. This finding implies that while institutional collaboration was generally effective, some respondents still perceived minor limitations regarding coordination consistency among government agencies.

Descriptive Analysis of Citizen Satisfaction

Citizen satisfaction was measured using five indicators consisting of service accessibility, administrative efficiency, transparency, system reliability, and public trust. The descriptive findings are presented in Table 5.

Table 5. Descriptive Statistics of Citizen Satisfaction

Citizen Satisfaction Indicators	Mean	Standard Deviation
Service accessibility	4.35	0.57
Administrative efficiency	4.41	0.53
Transparency of services	4.18	0.68
Reliability of public systems	4.33	0.60
Public trust in governance	4.21	0.65
Overall Mean	4.30	0.61

Source: Processed survey data, 2026

The results in Table 5 indicate that citizen satisfaction toward Singapore's smart governance system was generally high, with an overall mean score of 4.30. Administrative efficiency achieved the highest score of 4.41, indicating that digital governance systems substantially improved administrative convenience and reduced bureaucratic complexity. Respondents perceived that online public services enabled faster document processing, easier access to information, and more efficient administrative interactions. Service accessibility also received a strong evaluation with a mean score of 4.35. Citizens acknowledged that integrated digital platforms facilitated access to various public services across multiple sectors. The implementation of centralized digital identities and mobile-based governance applications significantly improved public access to administrative systems.

Meanwhile, transparency of services obtained the lowest mean score of 4.18. Although still categorized positively, this finding indicates that some respondents expected greater transparency regarding data management, digital decision-making processes, and governance accountability mechanisms. Public trust in governance similarly achieved a positive score, suggesting that smart governance initiatives strengthened citizens' confidence in public institutions and governance reliability.

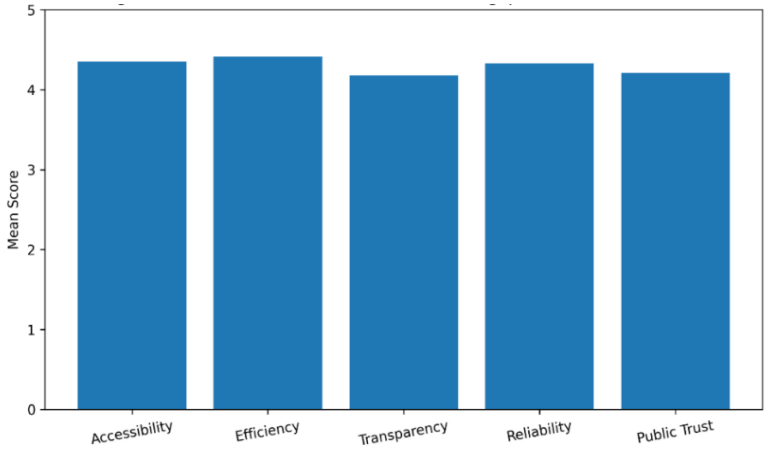

Figure 3. Citizen Satisfaction Dimensions in Singapore Smart Governance

Source: Processed survey data, 2026

Figure 3 illustrates the distribution of citizen satisfaction across major dimensions of Singapore's smart governance services. Administrative efficiency achieved the highest mean score (4.41), indicating that respondents perceived digital public services as highly effective in simplifying administrative procedures and improving service speed. Service accessibility (4.35) and system reliability (4.33) also received strong evaluations, reflecting the effectiveness of Singapore's integrated digital governance infrastructure in providing accessible and dependable public services. Meanwhile, transparency (4.18) and public trust (4.21) recorded relatively lower scores, although both indicators remained within the positive category. These findings suggest that while Singapore's smart governance framework has successfully enhanced administrative performance and service convenience, citizens still expect greater transparency and accountability regarding data management and digital decision-making processes. Overall, the figure demonstrates that data-driven governance contributes positively to citizen satisfaction through efficient, reliable, and accessible public administration systems.

Validity and Reliability Testing

Validity and reliability tests were conducted before hypothesis testing to evaluate the quality of the research instrument. Construct validity was measured using Pearson product-moment correlation analysis, while reliability was assessed through Cronbach's Alpha coefficients. The results are summarized in Table 6.

Table 6. Validity and Reliability Test Results

Variable	Validity Coefficient Range	Cronbach's Alpha	Interpretation
Data-Driven Public Management	0.681–0.842	0.891	Reliable
Citizen Satisfaction	0.694–0.856	0.903	Reliable

Source: Processed survey data, 2026

The results indicate that all measurement indicators satisfied validity requirements because correlation coefficients exceeded the minimum threshold of 0.30. Additionally, Cronbach's Alpha values for both variables were above 0.70, confirming strong internal consistency and instrument reliability. These findings demonstrate that the research instrument was statistically appropriate for further empirical analysis.

Classical Assumption Testing

Before conducting regression analysis, classical assumption tests were performed to ensure the robustness and accuracy of the statistical model. The tests included normality, multicollinearity, and heteroscedasticity analyses. The results are presented in Table 7.

Table 7. Classical Assumption Test Results

Test Type	Indicator	Result	Interpretation
Normality Test	Kolmogorov-Smirnov Sig.	0.087	Normal distribution
Multicollinearity Test	VIF Range	1.22–2.11	No multicollinearity
Heteroscedasticity Test	Significance Values	>0.05	No heteroscedasticity

Source: Processed survey data, 2026

The normality test result showed a significance value greater than 0.05, indicating that the data distribution was normal. Furthermore, the Variance Inflation Factor values remained below the maximum threshold of 10, confirming the absence of multicollinearity among independent variables. The heteroscedasticity test also demonstrated significance values above 0.05, indicating that the regression model was free from heteroscedasticity problems. Therefore, the statistical model fulfilled the necessary assumptions for regression analysis.

Regression Analysis

Multiple regression analysis was conducted to examine the influence of data-driven public management dimensions on citizen satisfaction. The regression results are presented in Table 8.

Table 8. Multiple Regression Analysis Results

Variables	Beta Coefficient	t-value	Significance
Data integration	0.286	4.517	0.000
Evidence-based decision making	0.221	3.984	0.001
Digital responsiveness	0.338	5.473	0.000
Inter-agency coordination	0.197	3.426	0.002
Constant	1.284	2.913	0.004
Model Statistics	**Value**		
R Square	0.721		
Adjusted R Square	0.713		
F-value	158.624		
Significance	0.000		

Source: Processed survey data, 2026

The regression findings indicate that all dimensions of data-driven public management significantly influenced citizen satisfaction. Digital responsiveness emerged as the strongest predictor with a beta coefficient of 0.338, demonstrating that fast and adaptive digital public services played the most substantial role in shaping positive citizen perceptions. Data integration also showed a strong positive influence on citizen satisfaction, suggesting that integrated administrative systems improved governance efficiency and minimized procedural fragmentation. Similarly, evidence-based decision making significantly affected citizen satisfaction because respondents perceived government policies as more rational, responsive, and data-oriented.

Inter-agency coordination produced the lowest beta coefficient but remained statistically significant. This finding suggests that institutional collaboration among government agencies still contributed positively to governance effectiveness and citizen experiences, although its influence was relatively weaker compared to other governance dimensions. The regression model produced an R Square value of 0.721, indicating that approximately 72.1% of the variation in citizen satisfaction could be explained by the independent variables included in the study. This finding demonstrates the substantial contribution of data-driven governance practices to public satisfaction within Singapore's smart city framework.

Hypothesis Testing

Hypothesis testing confirmed that all proposed hypotheses were accepted because each independent variable achieved significance values below 0.05. These findings demonstrate that effective implementation of data-driven public management significantly improves citizen satisfaction within Singapore's digital governance environment. The strong influence of digital responsiveness indicates that citizens prioritize fast, accessible, and user-oriented public services within smart governance

systems. In addition, the positive effect of evidence-based decision making suggests that citizens value governance systems capable of utilizing digital information transparently and effectively in policy processes.

Data-Driven Public Management and Citizen-Centered Smart Governance

This study's results provide evidence of the substantial role of data-driven public management in the context of the smart city governance framework for citizen satisfaction. The findings show that the digital responsiveness, data integration, evidence-based decision making, and inter-agency coordination have positive effects on public perceptions of governance quality and administrative effectiveness. The results underscore the need to move beyond technology to the managerial capacity of public bodies to leverage on digital information to effectively deliver governance outcomes which are responsive and citizen-centred, for the success of smart governance.

The high level of digital responsiveness that was found in this study aligns with the findings of other studies in which digital responsiveness is a key element in modern public administration. Citizens are now more inclined to judge government performance with respect to the speed, availability and technological usability of services, instead of through traditional bureaucratic processes (Nam & Pardo, 2021; Meijer & Bolívar, 2021). The present findings show that Singapore's integrated digital governance system has proven effective in enhancing administrative responsiveness, through the more concentrated use of public service platforms and real-time digital communication systems. This study, however, builds on the existing literature by showing that digital responsiveness does not just work as a technological tool, but as a strategic tool of public management that can promote citizen satisfaction and institutional trust at the same time.

Additionally, it can be seen that data integration has a positive correlation with citizen satisfaction, which aligns with previous research that emphasizes the significance of integrated governance systems in Smart City administration (Criado et al., 2021; Gil-Garcia et al., 2022). Previous studies focused more on technological interoperability and efficiency of digital infrastructure, while this study is more about the managerial aspects of integrated governance systems. Results indicate that a successful data integration has benefits for administrative fragmentation, for coordination between institutions, and for the continuity of services from the citizens' perspective. Within the Singaporean governance framework, centralized digital identity systems, and interwoven administrative databases seem to create smoother experiences when accessing public services, which in turn have a positive impact on public perceptions of governance performance.

The relevance of evidence-based decision making is also related to digital era governance theory which posits that data analysis and predictive governance will enhance governance effectiveness and institutional adaptability (Janssen et al., 2020; Dunleavy & Margetts, 2025; Talukder, 2025). Citizens trust and regard governance processes that make use of digital data to be more reliable and trustworthy if they are transparent and rational.If governance processes use digital data in a transparent and rational manner, citizens will trust and regard them as reliable and trustworthy. The study also indicates, however, that relatively low ratings were given to transparency indicators when compared against the other indicators of administrative efficiency and accessibility. This discovery implies that while Singapore's smart governance system is effective in operational efficiency, issues of transparency in data governance and algorithms' accountability are still relevant. This supports the earlier research on the fact that while technological sophistication can be a positive thing, it is not necessarily enough for public trust without ethical governance structures and clear communication from institutions

(Kong & Woods, 2022; Tsarouhas & Grigoriadis, 2026; Igwe-Nmaju & Anadozie, 2022).

Another significant aspect of this study is the incorporation of public management aspects in the study of smart city governance. Current smart city literature often takes a technologically determinative view that focuses on infrastructure upgrading and digital innovation, and neglects institutional and managerial aspects. This study provides evidence, however, that effectiveness of governance relies on a degree of organizational coordination, administrative responsiveness, and management strategies oriented toward citizens. The novelty of this research is to connect the study of smart governance with the theory of data-driven public management, introducing managerial effectiveness as a key factor in citizen satisfaction in digital governance ecosystems.

From a theoretical perspective, the study contributes to the development of digital-era governance discourse by emphasizing that citizen satisfaction in smart cities emerges through the interaction between technological capability and institutional management effectiveness. The results extend existing concepts of governance to the idea that data-driven administrative coordination is an essential governance mechanism that affects public trust and the legitimacy of governance. In practical terms, the study offers significant lessons for policy makers who are aiming at improving governance with citizen-centric systems and approaches. Governments must not only invest in the development of advanced technologies but also enhance inter-agency coordination, transparency in data governance, and the capacity of public management to adapt to deliver sustainable outcomes of citizen satisfaction.

Although this study has contributed, there are certain limitations to this study. However, the research employed a cross-sectional design, which only captured public perceptions at one moment in time and prevented the analysis of public perception changes over longer time periods. Third, the study was confined to Singapore, which has a very high level of digital governance infrastructure and may not be indicative of digital governance in developing countries or less digitalized cities. Thirdly, the study data was mainly quantitative survey data, which meant deeper qualitative analysis of experiences and issues of citizens and institutions in smart governance implementation was limited.

Longitudinal studies, however, should be taken into account in future research to explore how data-driven governance affects citizens' trust and administrative behaviour in the longer term. Such comparative analysis of several smart cities in various governance settings would also yield more general findings about how “data-driven” public management models can be adapted to different contexts. Further research can also incorporate qualitative approaches to examine the ethics of governance, digital inclusion and citizen perspectives on data privacy and algorithmic governance systems. These would build the knowledge base on how the smart governance approach can contribute not only in terms of technological efficiency, but also of inclusive and sustainable public administration results.

CONCLUSION

This study demonstrates that data-driven public management significantly contributes to citizen satisfaction within Singapore’s smart city governance framework. The findings indicate that digital responsiveness, data integration, evidence-based decision making, and inter-agency coordination positively influence public perceptions regarding governance quality, administrative efficiency, and institutional trust. Among these dimensions, digital responsiveness emerged as the strongest determinant of citizen satisfaction, highlighting the importance of adaptive, accessible, and citizen-oriented digital public services in contemporary governance systems.

The study contributes theoretically by integrating smart city governance discourse with data-driven public management perspectives, emphasizing that governance effectiveness depends not only on technological advancement but also on managerial capability and institutional coordination. This research expands digital-era governance theory by positioning citizen satisfaction as an outcome of both technological integration and responsive administrative management. Practically, the findings provide important implications for policymakers by demonstrating the necessity of strengthening integrated digital systems, governance transparency, and institutional collaboration to improve public service quality and citizen trust. Despite these contributions, the study has several limitations, including its cross-sectional design and focus on a single national context. Future research should therefore employ longitudinal and comparative approaches involving multiple smart cities to explore broader governance dynamics and long-term impacts of digital public management. Further qualitative exploration regarding data ethics, transparency, and digital inclusion would also strengthen future smart governance research.

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