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Building Citizen Satisfaction with E-Government Services: A Case Study of the Population Administration Information System (SIAK)

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ABSTRAK

Di era globalisasi dan transformasi digital, e-government telah menjadi strategi utama bagi pemerintah untuk meningkatkan pelayanan publik. Terlepas dari kemajuan, kepuasan warga tetap penting. Penelitian ini berfokus pada Sistem Informasi Administrasi Kependudukan (SIAK) Indonesia. Dengan menggunakan desain penelitian kuantitatif dan Pemodelan Persamaan Struktural (SEM-PLS), kami menganalisis faktor-faktor seperti kepercayaan pada pemerintah, kegunaannya yang dirasakan, kualitas layanan elektronik yang dirasakan, dan literasi digital. Temuan kami menunjukkan bahwa literasi digital dan kualitas layanan elektronik secara signifikan memengaruhi kepuasan warga. Kepercayaan pada pemerintah memiliki efek positif tetapi tidak signifikan. Untuk meningkatkan kepuasan warga, Indonesia harus memprioritaskan peningkatan literasi digital dan kualitas layanan elektronik. Ini akan memastikan bahwa inisiatif e-government secara efektif memenuhi kebutuhan dan harapan warganya.

ABSTRACT

In the era of globalization and digital transformation, e-government has become the main strategy for the government to improve public services. Despite progress, citizen satisfaction remains important. This research focuses on Indonesia's Population Administration Information System (SIAK). Using a quantitative research design and Structural Equation Modeling (SEM-PLS), we analyzed factors such as trust in the government, its perceived usefulness, perceived quality of electronic services, and digital literacy. Our findings show that digital literacy and the quality of electronic services significantly affect citizen satisfaction. Trust in the government has a positive effect but is not significant. To increase citizen satisfaction, Indonesia must prioritize improving digital literacy and the quality of electronic services. This will ensure that e-government initiatives effectively meet the needs and expectations of its citizens.

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INTRODUCTION

In today's era of globalization and digital transformation, governments around the world are constantly striving to optimize public service delivery to meet the rapidly evolving demands and expectations of citizens (Hai et al., 2021). The application of information technology in the form of e-government has become the primary strategy to achieve operational efficiency, improve service quality, and strengthen the principles of fairness and transparency in public administration (ElMassah & Mohieldin, 2020; Setianto et al., 2021). Although many advances have been made, the level of citizen satisfaction with e-government services is an important indicator that reflects the effectiveness of technology applications (Kuldosheva, 2021). Therefore, research on citizen satisfaction in the context of e-government is essential to ensure that technology investments actually bring the benefits that are widely expected and accepted by society (Triesna Priastuti et al., 2022).

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Although e-government aims to improve access and quality of public services, many studies show that citizen satisfaction has not been fully achieved. Some of the critical issues that often arise include system complexity, data security, and the need for trust in electronic services. This shows that there is a gap between the design of the service and the needs and expectations of users. In addition, there are still areas that need to be improved in a conceptual framework that can integrate various technical and social aspects. One example of a relevant policy is the implementation of the One Data Indonesia policy, which aims to improve data integration across government sectors to support more effective and efficient public services. This policy emphasizes the importance of cross-sectoral collaboration and better use of information technology in data management, which is in line with efforts to improve the conceptual framework in this research. Another argument in favor is the importance of an inclusive approach in e-government, where technical aspects, such as data security and accessibility, must go hand in hand with social aspects, such as public trust and digital literacy.

Indonesia has several unique challenges that affect citizens' satisfaction with e-government. First, there is a significant gap in internet access between urban and rural areas. According to data from the Central Statistics Agency (BPS), in 2021, internet penetration in urban Indonesia reached around 74%, while in rural areas it was only 60% (Effendi & Susanto, 2019; Sulistyo & Sotya Partiwi Ediwijoyo, 2020). Second, there are also issues of trust and data security, where many citizens are still hesitant to use online services due to concerns about the security of their personal information. (Mulyono et al., 2018; Sulaiman et al., 2022). Third, the complexity of navigating e-government websites and applications that are often not user-friendly, especially for citizens who are less technologically literate. In addition, there is an urgent need to improve the quality of e-government services that reflect specific local and cultural needs (Damayanti et al., 2019; Pundenswari, 2017). Although the government has made efforts to improve policies and systems, a survey from the Ministry of PANRB (State Apparatus Empowerment and Bureaucratic Reform) in 2022 showed that the general public's satisfaction with e-government services is still below expectations, with an average satisfaction score of only around 72 out of a scale of 100. This shows that there is significant room for improvement in terms of user satisfaction (Effendi & Susanto, 2019; Sabani et al., 2019).

The Population Administration Information System (SIAK) is a system developed by the government of Indonesia to manage and manage population administration electronically. The Population Administration Information System (SIAK) was first developed and implemented by the Indonesian government in 2004. This system aims to increase efficiency, transparency, and accuracy in population data management. SIAK is designed to speed up and simplify the population administration process, such as birth registration, issuance of Identity Cards (KTP), Family Cards (KK), as well as marriage and death certificates (Agus et al., 2019). By reducing the convoluted bureaucracy, SIAK shortens the completion time of various population services. In addition, SIAK ensures that the population data managed is accurate and up-to-date, thereby reducing errors and duplication. (Zaafira, 2023). This accurate data allows the government to make more targeted policies based on actual demographic conditions.

SIAK also increases the transparency of population services by providing access to the public to check the status of their applications online, thereby increasing the accountability of government officials (Adyas & Anggeraiyantie, 2019). This system allows integration with various other public services, such as health services, education, and social assistance, which makes population data widely available and beneficial to various sectors (Nugroho & Primadewi, 2020). The main features of SIAK include registration and management of population data, population reporting, and statistics, access to online services, and a strict data security system to protect citizens' data from unauthorized access and data leakage (Silfiana et al., 2021).

Therefore, this research is very relevant and essential to be carried out, especially in the context of Indonesia. The relevance of this research lies in its ability to identify and address the unique challenges faced by Indonesia in the implementation of e-government, such as the internet access gap between urban and rural areas, as well as data security and user-friendliness issues. Its importance lies in its contribution to developing a conceptual framework that integrates technological, social, and cultural factors. It is expected to provide valuable insights for the Indonesian government in increasing citizens' satisfaction with e-government services. This research aims to develop a conceptual framework that can integrate technological, social, and cultural factors to measure and increase citizens' satisfaction with e-government services. This framework is expected to provide valuable insights for the Indonesian government in designing and providing e-government services that not only meet technical needs but also touch on social and cultural aspects that are very important in the context of Indonesia.

Some of the studies that have examined Citizen Satisfaction with E-Government Services include a study by (Sari et al., 2019) Technical efficiency, responsiveness, transparency, security, and citizen support are essential dimensions of e-complaint service quality. (Sabani et al., 2019) Evaluating the performance of e-government from the perspective of citizens in Indonesia. The study found that the performance of e-government in Indonesia is still unsatisfactory, mainly due to low service availability, inadequate information quality, and weak information security. (Effendi & Susanto, 2019) Exploring the physical and cognitive limitations of citizens in the design of e-government websites in Indonesia, testing the physical and cognitive aspects, and finding that website design that adapts to user limitations can improve the effectiveness of e-government websites. The novelty in this study lies in the development of a conceptual framework that holistically integrates technological, social, and cultural factors to measure and increase citizens' satisfaction with e-government services. This study not only assesses the efficiency of e-government technology but also examines how social aspects such as public trust and digital literacy interact with local cultural factors to influence citizen satisfaction. Thus, this study offers a new and more comprehensive approach to understanding and improving citizens' acceptance and satisfaction with the implementation of e-government in Indonesia.

This research focuses on the administrative area of Tangerang City, which is located in Banten Province, Indonesia. Tangerang City was chosen as a research locus because it is one of the major cities that has experienced rapid development in the field of information and communication technology, especially in the implementation of e-government. The city has a heterogeneous population with varying levels of digital literacy, as well as various challenges related to the accessibility and quality of electronic-based public services. By focusing the research on Tangerang City, this study aims to identify and analyze the factors that affect citizens' satisfaction with e-government services, as well as provide relevant recommendations for service improvement in similar urban areas.

Literature Review

Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) is a theory developed by Fred Davis in 1986 to explain how users accept and use new technologies. (Han & Sa, 2022). TAM is an adaptation of the Theory of Reasoned Action (TRA), a social psychology model that aims to predict and explain individual behavior (Aburbeian et al., 2022). This model is essential in the context of information systems, where the adoption of technology by users dramatically affects the success of the implementation of such technology. (Fussell & Truong, 2022).

TAM has two main variables that affect the user's intention to use the technology and, ultimately, the actual usage. The first variable is Perceived Usefulness (PU), which refers to the extent to which a person believes that a particular technology will improve their performance in the job or task at hand (Acharya & Mekker, 2022). The second variable is Perceived Ease of Use (PEOU), which refers to the extent to which a person feels that the technology is easy to use with little or no effort (Chahal & Rani, 2022; Na et al., 2022).

The main characteristic of TAM is the direct influence of PU and PEOU on the intention to use technology; PU has a more decisive influence than PEOU (Fussell & Truong, 2023). Additionally, TAM is known for being a simple and intuitive model, making it popular in information systems research, as well as flexible because it can be modified and extended for different contexts and types of technologies (Bailey et al., 2022). Over time, TAM has undergone several developments, including TAM2, which adds external factors such as social norms and cognitive influences, and TAM3, which introduces factors that affect PEOU, such as external support, user experience, and technology specifications (Al-Adwan et al., 2023). This model also evolved into the Unified Theory of Acceptance and Use of Technology (UTAUT), which incorporates several other models of technology acceptance by adding factors such as performance expectations, business expectations, social influence, and facilitation conditions (Katebi et al., 2022; Oyman et al., 2022).

TAM has been widely used in various research and practices to assess technology adoption in various fields, such as information systems, education, and e-commerce (Rad et al., 2022). In the context of information systems, TAM helps evaluate the acceptance and use of new software or systems by users in an organization (Tao et al., 2022). In the field of education, TAM is used to evaluate the adoption of e-learning or other technology tools by learners and educators. While in e-commerce, TAM helps understand the factors that affect the adoption of online shopping platforms by consumers (Rad et al., 2022). TAM is an effective and frequently used model to predict and explain user behavior related to technology adoption, helping organizations better design, implement, and promote new technologies to achieve higher adoption rates (Rejali et al., 2023; Toraman, 2022).

In the context of e-government, the Technology Acceptance Model (TAM) provides a more precise framework to understand how users' perception of the usability and ease of use of technology affects their intention to use e-government services. TAM has proven to be highly relevant in assessing the acceptance of information technology in various sectors, including the public sector (Panjaitan & Ginting, 2022). By understanding where services are not meeting citizens' expectations, government agencies can make appropriate interventions to improve the quality of those services, for example, through upgrading IT systems, training staff, or redesigning service processes to be more user-oriented (Gandhi & Sajnani, 2020).

End-User Satisfaction

User Satisfaction Theory is often associated with the information quality model and the system success model by DeLone and McLean. This model highlights that the quality of the system, information, and services directly affects user satisfaction, which in turn affects the intention to continue using the system and the actual benefits experienced. (Dhingra et al., 2020; Kim & Kim, 2022). User Satisfaction Theory refers to the assessment of users of various aspects of information systems based on their experience in using the system. (Liang et al., 2021). The core idea of user satisfaction theory is that user satisfaction arises from comparing their expectations before using the system with their

perception of its performance after use. (Pramudito et al., 2023). If the performance of the system meets or exceeds expectations, users are likely to feel satisfied.

In research Dabas & Bajaj, (2019); Mamakou et al., (2023) There are 3 Key Elements of User Satisfaction Theory including;

1. Quality of Information: The accuracy, thoroughness, relevance, and timeliness of the information provided by the system.
2. System Quality: Reliability, security, availability, and ease of use of the system.
3. Quality of Service: The level of support and assistance provided to users in using the system.

User satisfaction not only impacts sustainable use but also customer loyalty and provides positive recommendations to others, which is very important in the context of business and public services. (Syahnur et al., 2020; Wang, 2023)..

Push Theory

Trust Theory in the context of information technology and e-commerce describes the extent to which users are confident that the systems or services they use are safe, reliable, and free from risk. (Su et al., 2020). This theory emphasizes the importance of trust as a prerequisite for the acceptance and use of technology, especially in contexts where there is significant uncertainty or risk, such as online transactions or the use of personal data. (Yu et al., 2020). The characteristics of the Trust Theory are Integrity, Competence, Reliability, Security, and Non-Alignment. (Zhao et al., 2023).

In research Roopa et al., (2019) There are three essential elements of this theory:

1. Security: Strong security mechanisms that protect user data and transactions from unauthorized access.
2. Privacy: A transparent and fair privacy policy that keeps user data confidential.
3. Transparency: Clear and open operations that allow users to understand how their information is being used

Trust influences technology adoption. For example, in e-commerce, consumers who trust the platform are more likely to make a purchase. Trust also affects participation in online services such as Internet banking and e-government, where trust plays a role in the convenience of users in interacting with government services online. (Kumar, 2023).

In the development and evaluation of information technology, the integration of these two theories is critical. In the context of E-Government, the Government must ensure that its online systems are easily accessible and used, as well as provide timely and relevant information to citizens. (Raza et al., 2020a). Additionally, there should be clear transparency about how data is collected and used, along with solid security guarantees to protect citizens' data (Rita et al., 2019).

Theoretical Framework

Trust in the Government

Trust in the government includes the extent to which citizens perceive the government to be reliable, transparent, and accountable in providing public services.. It also includes citizens' confidence that the government will act in accordance with the public interest and provide safe and effective services.

Perceived Usability

Usability perception refers to the extent to which citizens feel that the use of e-government services will improve their performance in accessing public services. This includes the benefits that citizens feel from using e-government services, such as ease of access, time savings, and increased efficiency.

Perceived electronic services

The perception of electronic services includes citizens' opinions about the quality of services offered through e-government platforms. This includes technical aspects such as system reliability, data security, ease of navigation, and the quality of the information provided.

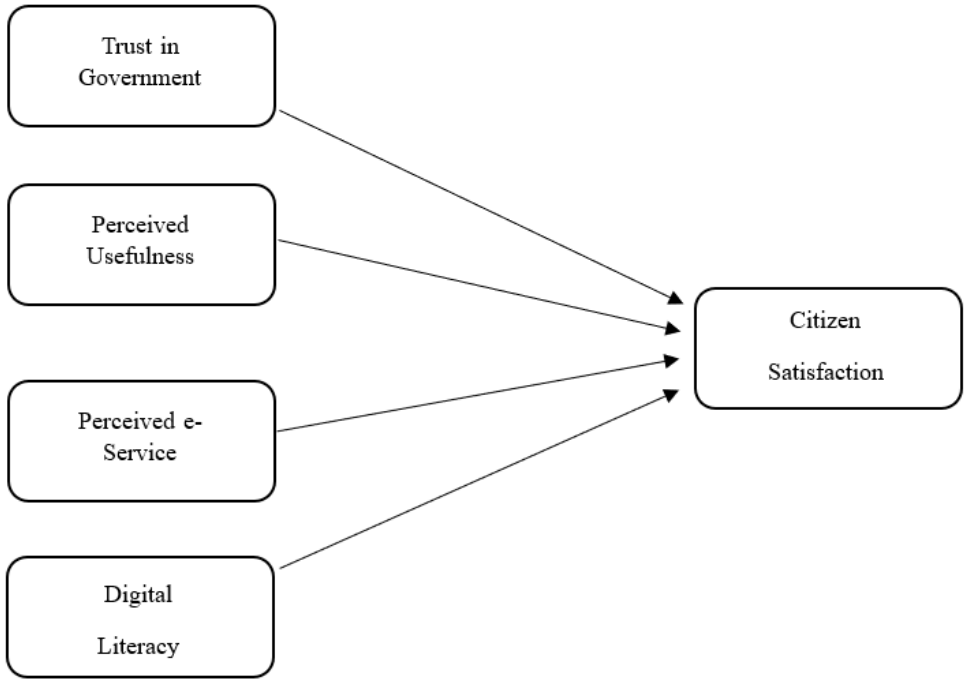
Citizen Satisfaction

Citizen satisfaction refers to how happy residents are with the e-government services they receive, covering their entire experience from accessing services to the results obtained.

Digital Literacy

The ability of citizens to use information and communication technology, including the internet, computers, and other digital devices, as well as the ability to search, evaluate, and use information from e-government services.

Figure 1.
Conceptual Framework



Sources: are processed by authors from various sources

H1: Trust in the Government has a positive effect on Citizen Satisfaction.

H2: Perceived Usefulness has a positive effect on Citizen Satisfaction.

H3: Electronic services that are perceived to have a positive effect on Citizen Satisfaction.

H4: Digital Literacy has a positive effect on Citizen Satisfaction.

RESEARCH METHODS

Research Design

This study seeks to identify and analyze the impact of service quality, trust, and satisfaction on the intention to use e-government services in the future. It uses a quantitative design using the SEM-PLS 4 method to examine the relationship between variables that affect citizen satisfaction with e-government services.

Population and Sample

1. Population: Users of e-government services in the administrative area of Tangerang City.
2. Sample: A stratified, random sample of e-government service users with demographic considerations such as age, gender, and geographic location.
3. Sample Size: Based on the recommendations for PLS-SEM, the minimum number of samples required is often around 100.
4. The Slovin formula is used to determine the number of samples needed in a study from a limited or known population. The formula of Slovin is as follows:

$$n = \frac{N}{1+N.E2}$$

Where:

n is the sample size
N is a population measure
E is the desired error rate (usually in decimal form)

To calculate the sample using the Slovin formula with a population of N = 5000 and an error rate of E = 0.1:

$$n = \frac{5000}{1+5000 \times (0,1)^2}$$

$$n = \frac{5000}{1+5000 \times 0.01}$$

$$n = \frac{5000}{1 + 50}$$

$$n = \frac{5000}{51}$$

$$n = 98.04$$

Data Collection

1. Instrument: The use of an online questionnaire consisting of a number of statement items designed to measure service quality, trust, satisfaction, digital literacy, and intent to use.
2. Measurement Scale: Likert is on a 5-point scale, from "strongly disagree" to "strongly agree".

Data Analysis

In this study, we use SmartPLS to analyze the Structural Equation Modeling (SEM) model, which aims to understand the impact of various factors on public satisfaction with e-government services, especially in the context of the Population Administration Information System (SIAK). Data was collected through a survey involving 100 e-government service users in the administrative area of Tangerang City. Initially, we tested the measurement model to ensure

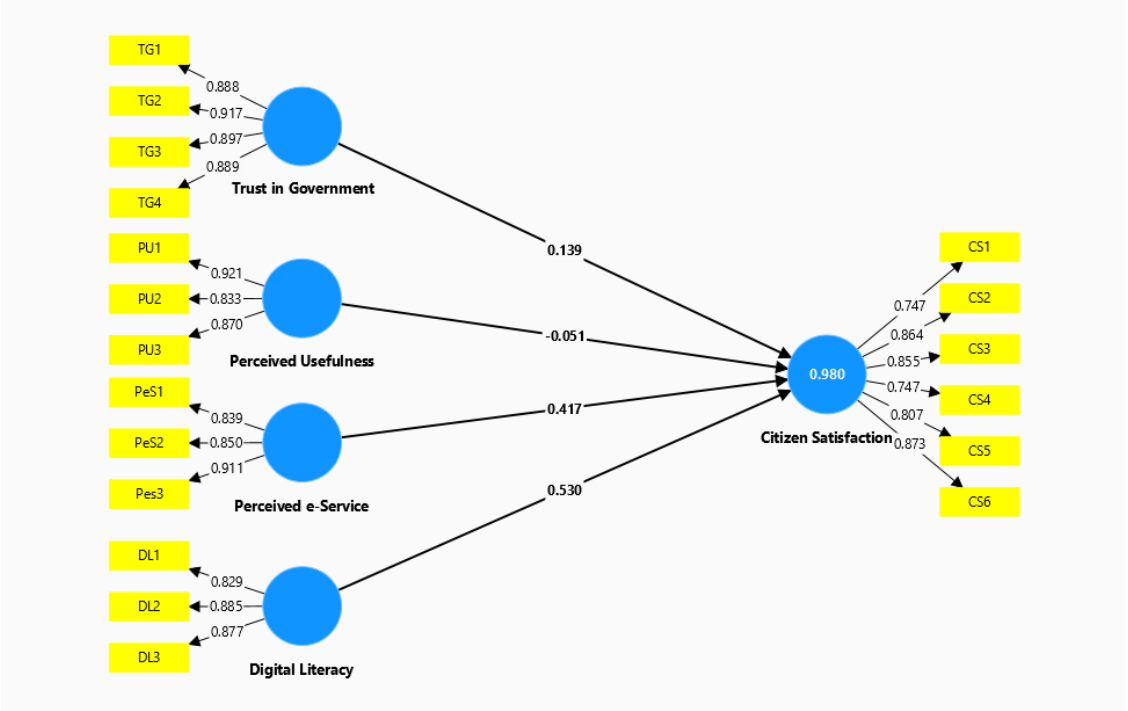
that all the indicators used were valid and reliable. This test involves assessing the factor-bearing of each indicator. The results show that all indicators have a loading value above 0.7, which indicates good convergence validity. In addition, Cronbach's Alpha and Composite Reliability values for each construct are above 0.7, indicating an adequate level of reliability. After confirming the validity and reliability of the measurement model, we proceed with the evaluation of the structural model to analyze the relationship between the variables that affect citizens' satisfaction with SIAK services. Trust in the Government has a positive influence on citizen satisfaction, although this influence is not significant (β = 0.139, p = 0.185). Digital Literacy showed a significant positive influence on citizen satisfaction (β = 0.530, p < 0.001). Perceived Usefulness had an insignificant negative effect on citizen satisfaction (β = -0.051, p = 0.661). Perceived e-Service showed a significant positive influence on citizen satisfaction (β = 0.417, p < 0.001).

Using the bootstrapping technique in SmartPLS, we obtained confidence intervals for all path coefficients, which ensures the stability of the resulting model estimation. These results show that the model used has sufficient robustness to explain the relationship between variables in the context of citizens' satisfaction with SIAK services.

RESULTS AND DISCUSSIONS

The following section presents the findings of a study that analyzes the factors that affect citizens' satisfaction with e-government services in Indonesia. This analysis examines the relationship between trust in the government, perceived usability, perception of electronic services, and citizen satisfaction. This relationship is investigated using a structural equation modeling (SEM) approach, as illustrated in the diagram below.

Figure 2.
Validating the research model



Source: Processed by the author Using SmartPLS

The figure illustrates the Structural Equation Modeling (SEM) model, which describes the relationship between several key variables that affect citizens' satisfaction with e-government services. The model includes four main independent variables and one dependent variable, "Citizen Satisfaction." The variable "Trust in the Government" was measured by four indicators: TG1, TG2, TG3, and TG4, with the loading factor ranging from 0.888 to 0.917. This variable has a positive influence on citizen satisfaction with a path coefficient of 0.139. In addition, the variable "Perceived Usefulness" was measured with three indicators: PU1, PU2, and PU3, with loading factors ranging from 0.833 to 0.921. However, this variable shows a negative influence on citizen satisfaction with a path coefficient of -0.051. The "Perceived e-Service" variable was measured by three indicators: PeS1, PeS2, and PeS3, with a loading factor ranging from 0.839 to 0.911. This variable has a positive influence on citizen satisfaction with a path coefficient of 0.417. The "Digital Literacy" variable was measured by three indicators: DL1, DL2, and DL3, with a loading factor ranging from 0.829 to 0.885. Digital literacy showed a significant influence on citizen satisfaction with a path coefficient of 0.530. The dependent variable, "Citizen Satisfaction," was measured by six indicators: CS1, CS2, CS3, CS4, CS5, and CS6, with loading factors ranging from 0.747 to 0.873. This variable has an R-square of 0.980, indicating that this model can explain 98% of the variability of citizen satisfaction.

The path coefficients between these variables indicate the strength and direction of the relationship between the independent and dependent variables. Overall, this model shows that perceived digital literacy and electronic services have a significant and positive impact on citizen satisfaction, while perceived usability has a negligible negative impact. Trust in the government also has a positive influence, although it is less substantial compared to other variables.

Results of reliability and validity measurements

Table 1.
Building Reliability and Validity

	Alpha Cronbach	Composite Reliability (rho_A)	Composite Reliability (rho_C	Extracted Average Variance (AVE)
Citizen Satisfaction	0.900	0.905	0.923	0.668
Digital Literacy	0.830	0.836	0.898	0.746
Perceived Usability	0.847	0.853	0.908	0.767
Perceived electronic services	0.835	0.841	0.901	0.752
Trust in the Government	0.920	0.921	0.943	0.806

Source: Processed by the author Using SmartPLS

This table displays the results of the reliability and validity analysis of the five main variables studied, namely "Citizen Satisfaction," "Digital Literacy," "Perceived Usability," "Perceived Electronic Services," and "Trust in the Government."

The Alpha Cronbach value is an essential indicator for assessing the internal reliability of the items used in measuring each construct. All variables in the study showed an Alpha Cronbach value above 0.7, which is the generally accepted minimum limit to indicate adequate internal reliability. Specifically, the variable "Trust in Government" had the highest value of 0.920,

indicating that items on this scale are very consistent with each other. This high reliability suggests that citizens have a uniform perception of their trust in the government and that the instrument manages to capture the fundamental dimensions of the construct. The reliability of the composites (rho_A and rho_C) also showed high values for all variables, which not only confirmed the reliability of the measurements but also showed that the scale used had a higher consistency than that measured by Alpha Cronbach. The rho_C value for "Trust in Government" reached 0.943, indicating that this measurement is not only consistent but also reliable for a variety of different populations and research conditions. This is important in social research, where context variability can affect the reliability of measurements.

The AVE (Average Variance Extracted) value provides information about how well the indicators of a construct are able to explain the total variability of the construct. An AVE above 0.5 indicates that more than 50% of the variability in the indicators can be explained by the measured construct, signaling good convergence validity. In this table, "Trust in Government" again stands out with the highest AVE value of 0.806, meaning that most of the variability in these measurement items is attributed to the construct. This not only strengthens the reliability of the scale but also ensures that the measurement actually measures the concept of "trust" as defined in the context of this study.

This table reveals that the instruments used in this study have an excellent level of reliability and validity. This ensures that the findings produced are not only accurate but also relevant and reliable to apply in a broader context. This strengthens the credibility of the proposed model, providing a solid foundation for the theoretical and practical implications drawn from the research results.

Descriptive Statistics (n = Number of Respondents)

Table 2.
Descriptive Statistics

	n	Minimum	Median	Maximum	Mean	Standard Deviation
Trust in the Government	100	2.000	4.000	4.000	3.440	0.753
Digital Literacy	100	2.000	3.000	4.000	3.380	0.789
Perceived Usability	100	2.000	4.000	4.000	3.280	0.792
Citizen Satisfaction	100	2.000	4.000	4.000	3.480	0.789
Perceived electronic services	100	2.000	4.000	4.000	3.380	0.789

Source: Processed by the author Using SmartPLS

The table presents descriptive statistics for five main variables in the study of citizen satisfaction with e-government services, namely Trust in Government, Digital Literacy, Perceived Usefulness, Citizen Satisfaction, and Perceived e-service. These statistics include the sample size (n), minimum value, median, maximum value, mean, and standard deviation for each variable. Trust in Government has a sample size of 100 with a minimum value of 2,000, a median of 4,000, and a maximum of 4,000. The average score is 3.440, with a standard deviation of 0.753. This shows that the average citizens' trust in the government is relatively high, with moderate variation among respondents. Digital Literacy also has a sample size of 100 with a minimum score of 2,000, a median of 3,000, and a maximum of 4,000. The average value is 3,380, with a standard deviation of 0.789. This shows that the average digital literacy of citizens is quite good, although there is significant variation among respondents. Perceived Usefulness indicates a sample size

of 100 with a minimum value of 2,000, a median of 4,000, and a maximum of 4,000. The average value is 3,280, with a standard deviation of 0.792. This shows that citizens are pretty satisfied with the usefulness of e-government services despite variations in their perceptions. Citizen Satisfaction has a sample size of 100 with a minimum value of 2,000, a median of 4,000, and a maximum of 4,000. The average value is 3,480, with a standard deviation of 0.789. This shows that the level of citizens' satisfaction with e-government services is relatively high, with moderate variation among respondents. Perceived e-Service also has a sample size of 100 with a minimum value of 2,000, a median of 4,000, and a maximum of 4,000. The average value is 3,380, with a standard deviation of 0.789. This shows that citizens' perception of the electronic services provided by the government is quite good, with significant variation among respondents.

R-Square

Table 3.
R-Square

	R-Square	
Citizen Satisfaction	0.980	Tall

Source: Processed by the author Using SmartPLS

The table above shows that "Citizen Satisfaction" has an R-Square value of 0.980, categorized as "High." This high R-Square value signifies that most of the variability in "Citizen Satisfaction" can be accounted for by the variables or factors included in the model. This shows that the model is effective in explaining the level of citizen satisfaction.

Hypothesis Test

Table 4.
Hypothesis Test

	Original Sample (O)	Average Sample (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Value	
Digital Literacy -> Citizen Satisfaction	0.530	0.514	0.096	5.547	0.000	Accepted
Perceived Usability -> Citizen Satisfaction	-0.051	-0.015	0.116	0.438	0.661	Rejected
Perceived electronic services -> Citizen Satisfaction	0.417	0.398	0.094	4.423	0.000	Accepted
Trust in the Government -> Citizen Satisfaction	0.139	0.141	0.105	1.326	0.185	Rejected

Source: Processed by the author Using SmartPLS

The table above shows the results of a statistical analysis of the relationship between Perceived Usefulness, Perceived e-Service, Trust in Government, and Citizen Satisfaction, which shows acceptance rates based on different p-values:

1. Digital Literacy towards Citizen Satisfaction shows significant results. The Original Sample Value of 0.530, the Sample Average of 0.514, and the Standard Deviation of 0.096 resulted in a T Statistics of 5.547 and a P-value of 0.000. With these results, the

hypothesis is accepted, showing that the increase in digital literacy is positively and significantly related to the increase in citizen satisfaction.

2. Perceived Usefulness to Citizen Satisfaction did not show significant results. The Original Sample Value of -0.051, the Sample Average of -0.015, and the Standard Deviation of 0.116 resulted in a T Statistic of 0.438 and a P-value of 0.661. This hypothesis was rejected, which means that the perception of usability was not significantly related to citizen satisfaction.
3. Perceived e-Service to Citizen Satisfaction shows significant results. The Original Sample Value of 0.417, the Sample Average of 0.398, and the Standard Deviation of 0.094 resulted in a T Statistics of 4.423 and a P-value of 0.000. This hypothesis is accepted, suggesting that a better perception of electronic services is positively and significantly associated with increased citizen satisfaction.
4. Trust in the Government for Citizen Satisfaction did not show significant results. The Original Sample Value of 0.139, the Sample Average of 0.141, and the Standard Deviation of 0.105 resulted in a T Statistics of 1.326 and a P-value of 0.185. This hypothesis is rejected, which means that trust in the government is not significantly related to citizen satisfaction.

Discussion

This study aims to evaluate the factors that affect citizens' satisfaction with e-government services in Indonesia, mainly focusing on the Population Administration Information System (SIAK). The findings show that trust in government, digital literacy, perceived usability, and perception of electronic services each have different impacts on citizen satisfaction.

Results of the analysis showed that trust in the government had a positive effect on citizen satisfaction, but this effect was not significant (Statistical T Value = 1.326, P Value = 0.185). Although this relationship is not statistically significant, it is essential to explore the reasons behind these results further. This insignificance can be caused by several factors, such as trust in the government, which is situational or depends on specific issues faced by citizens when using e-government services. For example, citizens may trust the government in a general context. However, bad experiences with certain services, such as accessibility or data security issues, can reduce the effect of that trust on their satisfaction. Further, previous research has shown that trust in governments is often an essential factor in the acceptance of new technologies. However, in the context of e-government services in Indonesia, trust has not fully developed in a direction that can significantly affect satisfaction. This may be due to the gap between citizens' expectations and the realities they face when using e-government services, such as system complexity or data insecurity. Therefore, while trust is important, these results suggest that other factors, such as service quality or ease of use, may have a more significant impact on citizen satisfaction. To remedy the influence of this trust, the government needs to increase the transparency and security of e-government services, as well as ensure that these services are responsive to the needs and concerns of citizens. By improving these aspects, trust in the government is expected to significantly affect citizen satisfaction in the future (Afrizal & Wallang, 2021; Effendi & Susanto, 2019). Digital literacy has been shown to have a significant positive impact on citizen satisfaction (Statistical T Value = 5.547, P Value = 0.000). To clarify the interpretation of these results, digital literacy in this study is categorized into three levels based on respondents' scores: Good (75%-100% of the total maximum score), Fair (50%-74%), and Less (below 50%). This categorization helps explain the variation in citizens' ability to utilize information technology and how this variation contributes to their satisfaction with e-government services. These findings show that citizens' ability to use information and communication technology directly contributes to their satisfaction with e-government services.

This study supports previous research, which shows that higher digital literacy allows citizens to access and utilize e-government services more effectively (Syahnur et al., 2020; Zaafira, 2023).

The results of this study show that "Perceived Usefulness" or perception of usefulness does not have a significant influence on citizen satisfaction (Statistical T Value = 0.438, P Value = 0.661). Although, in theory, the perception of usability is expected to increase user satisfaction, these results show that other factors are more dominant in influencing citizens' satisfaction with e-government services. This analysis indicates that while citizens may recognize the benefits of e-government services, factors such as system complexity, technical constraints, or inadequate user experience can reduce the positive impact of usability perceptions. This suggests that usability alone is not enough to encourage satisfaction. Other elements, such as ease of use, system reliability, and data security, need to be taken more seriously. These results can also be attributed to the literature highlighting that in the context of information technology, especially in developing countries such as Indonesia, the usefulness of technology is not always the primary determinant of user satisfaction. For example, research by Mulyono et al., (2018). This shows that in the context of digital services, usability is often balanced by technical and social challenges, such as low digital literacy or limited internet access, which can hinder users' perceived benefits. In the context of Indonesia, where there is a significant disparity in internet access and digital literacy levels, the benefits of e-government services may not be felt equally by all levels of society. This can cause a positive perception of usability not to be reflected in high satisfaction due to other barriers that reduce the overall user experience. Therefore, it is essential for governments to not only focus on developing valuable services but also ensure that they are accessible, simple to use, and able to meet the specific expectations and needs of different user demographic groups. For example, efforts to improve a more intuitive user interface and educational programs to improve digital literacy among less experienced users can help improve overall satisfaction.

The perception of electronic services has a significant positive impact on citizen satisfaction (Statistical T Value = 4.423, P Value = 0.000). These findings are in line with research that shows that the quality of electronic services, such as system reliability, ease of navigation, and data security, is an essential factor in determining user satisfaction. (Raza et al., 2020b; Silfiana et al., 2021).

The findings of this study offer several practical implications for the Indonesia government to increase citizen satisfaction with e-government services. First, increasing citizens' digital literacy through education and training programs can effectively increase satisfaction. Second, improving the quality of electronic services by focusing on reliability, ease of use, and data security can increase citizens' perception and satisfaction. Third, while trust in the government is important, efforts to increase satisfaction must prioritize citizens' direct experience with using services.

CONCLUSIONS

This study aims to analyze the factors that affect citizens' satisfaction with e-government services in Indonesia, especially focusing on the Population Administration Information System (SIAK). Some of the main findings of this study are as follows: Trust in the Government has a positive influence on citizen satisfaction, although this influence is not significant. This shows that while trust is very important, other factors also play a role in determining citizens' satisfaction. Digital literacy has been shown to have a significant influence on citizen satisfaction, showing that citizens' ability to use information and communication technology directly contributes to their level of satisfaction with e-government services. Usability Perception did

not show a significant influence on citizen satisfaction. Although theoretically, the perception of usability is expected to increase user satisfaction, these results suggest that other factors may be more relevant in the context of e-government services in Indonesia. The perception of Electronic Services shows a significant beneficial influence on citizen satisfaction, with factors such as system reliability, ease of navigation, and data security found to be important elements in determining user satisfaction levels.

Overall, this study highlights the importance of digital literacy and perception of electronic services in increasing citizens' satisfaction with e-government services in Indonesia. These findings provide a solid basis for further research and the development of more effective policies in the field of e-government.

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