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The Role of Digital Services in Improving the Quality of e-KTP Services and User Satisfaction

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Abstract

Electronic Identity Card (e-KTP) services constitute a strategic form of public service that plays a crucial role in fostering orderly population administration and enhancing the quality of governmental governance. The quality of e-KTP services serves as a primary determinant in shaping public satisfaction as service users, given that the e-KTP functions not only as a legal identity but also as a foundational component of the national population database. This study aims to analyze the role of service delivery in improving the quality of e-KTP services and its implications for user satisfaction. The research employs a literature review method with a descriptive-analytical approach to a number of national scholarly journals that examine e-KTP service quality across various regions in Indonesia. The findings indicate that the quality of e-KTP services, measured through the dimensions of tangibles, reliability, responsiveness, assurance, and empathy, exerts a significant influence on user satisfaction, although the degree of influence of each dimension varies according to regional characteristics and the capacity of service providers. Furthermore, supporting factors such as the availability of facilities and infrastructure, the competence of public officials, procedural clarity, and technology-based service innovations contribute to enhancing perceptions of service quality. Therefore, improving the quality of e-KTP services requires not only technical and administrative improvements but also the strengthening of a user-centered public service orientation.

Keywords: e-KTP; service quality; user satisfaction; public service.

I. INTRODUCTION

Public service is a constitutional obligation of the state aimed at fulfilling citizens' basic rights and embodying the principles of effective and accountable governance. Law Number 25 of 2009 stipulates that public services encompass a comprehensive set of activities related to the provision of administrative services, goods, and services in accordance with prevailing laws and regulations. Consequently, service quality serves as a primary indicator of government performance (Republic of Indonesia, 2009).

One strategic form of public service is population administration, particularly the issuance of the electronic National Identity Card (e-KTP). The implementation of the e-KTP is intended to establish an orderly, integrated, and single-data-based population administration system through the utilization of information technology (Republic of Indonesia, 2006; Republic of Indonesia, 2013). Beyond its function as a legal identity document, the e-KTP also serves as a national database that supports various cross-sector public services, including healthcare, banking, education, and electoral administration.

The nationwide implementation of the e-KTP policy was reinforced through Presidential Regulation Number 26 of 2009, later refined by Presidential Regulation Number 35 of 2010, which emphasizes the importance of integrating population data based on the National Identification Number (NIK) at the national level (Republic of Indonesia, 2009; Republic of Indonesia, 2010). Accordingly, the quality of e-KTP services becomes a determining factor in the success of population administration as well as a reflection of the performance image of local government bureaucracies.

Previous studies indicate that e-KTP services in several regions continue to face various challenges, both technical and non-technical in nature. Common issues include limited facilities and infrastructure, disruptions in information system networks, uncertainty regarding service completion timeframes, and inconsistent performance of service personnel. These problems ultimately affect the level of public satisfaction as service users (Yulianto & Haryanti, 2021; Lutfi, 2023).

Service quality is understood as the extent to which service providers are able to meet the needs and expectations of service users. Parasuraman, Zeithaml, and Berry (1988) propose five key dimensions of service quality: tangibles, reliability, responsiveness, assurance, and empathy. This model has been widely applied in public service studies due to its ability to explain the relationship between service quality and user satisfaction.

User satisfaction represents an evaluative response that emerges after comparing expectations

with perceived service performance. In the context of public services, public satisfaction not only reflects service quality but also serves as an indicator of legitimacy and public trust in government institutions (Hardiyansyah, 2018). Numerous empirical studies demonstrate that the quality of e-KTP services has a significant influence on public satisfaction, although the contribution of each service quality dimension varies depending on regional characteristics and the capacity of service providers (Rohmah et al., 2024; Lubis et al., 2025).

Based on the above discussion, it can be concluded that examining the role of services in improving e-KTP service quality and user satisfaction holds both academic and practical significance. Although numerous studies on e-KTP services have been conducted, most remain partial and context-specific. Therefore, a study that integrates and synthesizes findings from previous research is necessary to obtain a more comprehensive understanding of the role of services in enhancing e-KTP service quality and user satisfaction.

II. RESEARCH METHODOLOGY

This study adopts a quantitative approach, as the primary data analyzed are obtained from questionnaires distributed to members of the public who use digital e-KTP services. Aquantitative method is selected because it enables the measurement of relationships among variables in a systematic manner and produces results that can be statistically tested through structural model analysis. This approach allows the researcher to assess the magnitude of the influence of digital services on service quality and user satisfaction based on data collected from respondents.

2.1 System Theory and Public Service Theory

This study is grounded in System Theory as proposed by Ludwig von Bertalanffy. System Theory explains that every organization functions as a system composed of interconnected components that work together to achieve specific objectives. When one component fails to operate effectively, it will affect the performance of other components within the system.

In addition, this research is based on Public Service Theory developed by Osborne and Gaebler through the concept of New Public Management (NPM). This theory emphasizes that public services should be managed in a modern manner, guided by principles of efficiency, transparency, and citizen-oriented satisfaction. Under this paradigm, the government no longer acts merely as an authority, but as a service provider responsible for delivering services that are fast, accurate, and easily accessible to the public.

2.2 Conceptual Framework

Conceptually, this study departs from the idea that the implementation of digital services constitutes an integral part of the transformation of public service systems. According to System Theory, digitalization will be successful only if all organizational components human resources, technology, and policies operate in harmony. The quality of digital services is subsequently assessed using the SERVQUAL model, which measures reliability, responsiveness, assurance, empathy, and tangibles.

When these dimensions are adequately fulfilled, User Satisfaction Theory suggests that citizens will experience satisfaction and develop trust in government performance. This relationship can be formulated as follows:

Digital Services (X) → Service Quality (X1) → User Satisfaction (Y)

Through this framework, the study is expected to explain how the digitalization of e-KTP services contributes to improving public service quality while simultaneously strengthening public trust in government institutions.

2.3 Research Model

a. **Reliability**
- Timeliness of e-KTP issuance
- Accuracy of population data

b. **Responsiveness**
- Speed of officers in responding to complaints
- Readiness to assist service users

c. **Assurance**
- Competence of service officers
- Data security and legal certainty of e-KTP information

d. **Empathy**
- Officers' attention to community needs
- Politeness and friendliness in service delivery

e. **Tangibles**
- Supporting facilities for digital services
- Appearance and completeness of technological infrastructure

III. RESULTS AND DISCUSSION

3.1. Result

Digital services have been shown to improve the quality of e-KTP services, particularly in terms of speed and responsiveness. This improvement in service quality subsequently leads to higher levels of public satisfaction. In other words, the effect of digital services on user satisfaction does not occur directly, but is mediated by service quality. When service quality improves, user satisfaction increases accordingly; however, if the digital system experiences problems or is not supported by

competent human resources, user satisfaction remains low despite the implementation of technology.

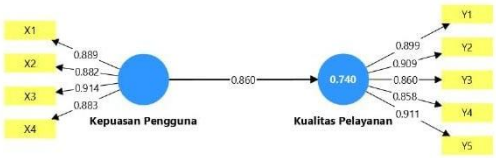

Figure1. Narrative of the Structural Model Figure (X1–X4 to User Satisfaction → Service Quality Y1–Y5)

The structural model illustrated in the figure depicts the relationship between **User Satisfaction** as the exogenous variable and **Service Quality** as the endogenous variable. Each construct is measured using several indicators, with outer loading values generally exceeding 0.88 for the User Satisfaction variable and ranging from 0.85 to 0.91 for the Service Quality variable. These high loading values indicate that all indicators contribute strongly to explaining their respective constructs, thereby confirming that the research instrument meets the criteria for convergent validity.

The User Satisfaction variable is measured through four indicators (X1–X4), with loading values of 0.889, 0.882, 0.914, and 0.883, respectively. These results demonstrate that users' perceptions of service satisfaction are consistent and stable. Meanwhile, the Service Quality variable is measured through five indicators (Y1–Y5), with loading values of 0.899, 0.909, 0.860, 0.858, and 0.911. The diversity of these indicators reflects that service quality encompasses reliability, responsiveness, assurance, empathy, and tangibles, all of which are strongly associated with the main construct.

The structural relationship between the two variables is indicated by a path coefficient of 0.860, suggesting that User Satisfaction has a positive and strong influence on Service Quality. The higher the level of satisfaction perceived by users, the greater their overall perception of service quality. This finding implies that service effectiveness is strongly influenced by users' experiences when utilizing the provided services, particularly in terms of convenience, efficiency, and clarity of information.

Overall, the diagram illustrates that the research model satisfies the fundamental requirements of quantitative research based on SEM–PLS, namely the strength of indicators in representing latent variables and the presence of a theoretically meaningful and statistically relevant structural relationship between the constructs.

Table 1. Results of the Outer Model Validity Test

	R Square
Community Satisfaction	0,860

The outer model validity test was conducted to ensure that each indicator forming the latent variables accurately represents the corresponding constructs. In the PLS-SEM approach, an indicator is considered valid when its outer loading value exceeds the minimum threshold of 0.70, indicating that the indicator makes a strong contribution to the variable it measures.

Table 2. Outer Model Validity Test Results for Service Quality and User Satisfaction Variables

	User Satisfaction	Service Quality
X1	0.889	
X2	0.882	
X3	0.914	
X4	0.883	
Y1		0.899
Y2		0.909
Y3		0.860
Y4		0.858
Y5		0.911

The values presented in the table represent the outer loading results, which indicate the strength of each indicator in explaining its corresponding variable. All values range from 0.858 to 0.914, indicating that all indicators have a very strong relationship with their respective variables. The indicators of the service quality variable (X1 to X4) show high loading values, with the strongest loading observed for X3 at 0.914. This finding suggests that X3 serves as the best representation of overall service quality. Meanwhile, X1, X2, and X4 also demonstrate very strong relationships, as their loading values exceed 0.88. Therefore, all four indicators can be considered valid and suitable for measuring service quality.

A similar pattern is observed for the user satisfaction variable. All five indicators (Y1 to Y5) have loading values above 0.85, with Y5 reaching 0.911 and Y2 at 0.909. These results indicate that these two indicators contribute most significantly to explaining user satisfaction. Although the loading values of Y3 and Y4 are slightly lower, they remain strong, suggesting that user satisfaction is consistently explained by all measurement items employed in the study.

Table 3. Reliability Table Test Results

	Cronbachs alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted
User Satisfaction	0.914	0.915	0.940	0.796
Service Quality	0.933	0.936	0.949	0.788

Table 4. Output Result for Inner Weight

	Sample	Sample mean	Standard deviation	T statistics	P values
Service Quality and User Satisfaction	0.860	0.861	0.028	30.323	0.000

Path Coefficient Test Results

The results of the path coefficient analysis indicate that the relationship between **User Satisfaction** and **Service Quality** has a coefficient value of 0.860, reflecting a very strong and positive effect. The T-statistic value of 30.323 far exceeds the minimum threshold of 1.96, while the p-value of 0.000 confirms that this relationship is statistically significant. Therefore, it can be concluded that an increase in user satisfaction contributes substantially and significantly to improvements in service quality. The more satisfied users are with the digital services provided, the higher their overall evaluation of service quality.

Respondent Characteristics

The respondents in this study consist of members of the public who have utilized digital e-KTP services. The majority of respondents fall within the productive age range of 18 to 40 years, a group that is generally familiar with digital technology in daily activities and therefore finds it relatively easy to access population administration service applications. Respondents aged over 40 years are fewer in number; however, they still provide valuable insights, particularly regarding perceptions of ease of use of digital services.

In terms of gender, the composition of respondents is relatively balanced between males and females. This indicates that the use of digital services for e-KTP administration is not dominated by any specific gender group but is utilized evenly across the population.

With regard to educational background, most respondents possess secondary to higher education levels. This condition suggests that digital literacy plays a significant role in facilitating access to application-based services. Respondents with higher educational attainment tend to provide more critical evaluations of service quality, especially concerning system speed and transparency.

Based on occupational background, respondents come from diverse professions, including civil servants, private-sector employees, students, homemakers, and informal workers. This diversity demonstrates that digital e-KTP services have reached nearly all segments of society, encompassing both individuals with formal work routines and those with more flexible schedules.

Overall, the respondent characteristics in this study indicate that users of digital e-KTP services have varied backgrounds in terms of age, education, and occupation. This diversity strengthens the quality of the research data, as it more comprehensively reflects the actual conditions of service users.

IV. CONCLUSION

The primary solution for improving the quality of e-KTP services is the strengthening of service systems through continuous improvement and maintenance of facilities and infrastructure, including enhancing the reliability of information technology systems to minimize technical disruptions. In addition, more effective coordination mechanisms between local governments and the central government are required to ensure the availability of e-KTP blanks and to provide certainty regarding service completion timelines.

Another solution involves the development of staff capacity through continuous training programs that emphasize technical competence, regulatory understanding, and public service ethics. The implementation of clear service standards and periodic performance evaluation systems can encourage increased professionalism and responsiveness among service personnel.

Furthermore, the adoption of information technology–based service innovations, such as online information services, digital queue systems, and electronic complaint mechanisms, can serve as effective solutions to improve efficiency, transparency, and accountability in e-KTP services. Through the integrated implementation of these solutions, the quality of e-KTP services is expected to improve sustainably and be oriented toward user satisfaction.

V. RECOMMENDATION

Based on the research findings, it is recommended that e-KTP service providers, particularly the Department of Population and Civil Registration, strengthen service facilities and infrastructure to minimize technical constraints such as system disruptions and limited facilities. In addition, improved coordination with the central government is necessary to ensure the availability of e-KTP blanks in order to guarantee certainty in service completion times.

Furthermore, enhancing the quality of human resources should be a priority through continuous training programs focused on technical competence and public service ethics. Strengthening the

responsiveness, empathy, and professionalism of service personnel is expected to improve the quality of interactions with the community and reinforce public trust in e-KTP services.

Another recommendation is the development of service innovations based on information technology, such as the provision of online service information and digital queue systems, to improve service efficiency and procedural transparency. Thus, improvements in e-KTP service quality can be implemented sustainably and oriented toward user satisfaction.

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