Evaluation Municipal E-Health Service Quality: An E-GovQual and IPA Assesment of Surabaya's Public Healthcare Platform

Rahadian Bisma[1*], Dewi Rara Prameisty[2]

[1,2]*Information System, Universitas Negeri Surabaya, Indonesia*

*corr-author: rahadianbisma@unesa.ac.id

Abstract - The Surabaya City E-Health service is one of the digital public services used for online queue registration for community health centers and hospitals owned by the Surabaya City government. Over the past three years, the number of individuals using the service has risen, but during implementation, service users still face several obstacles. The obstacles users encounter certainly affect their experience using the service. Therefore, it is important to evaluate the quality of Surabaya City's E-Health service using the E-GovQual and Importance-Performance Analysis (IPA) methods. Data collection was conducted using questionnaires distributed to users, and 400 respondents who met the research sample criteria were obtained. The analysis using E-GovQual found the lowest gap level for the RL6 indicator at -0.17 and the highest level of conformity at 96%. The quadrant mapping results on the IPA diagram identified six indicators that were highlighted for improvement: TR1, TR2, TR3, TR4, RL2, and CS2. Several improvement recommendations were provided in accordance with the priority improvement indicators, including those related to the security of service users' personal data. In contrast to earlier E-GovQual–IPA research that mainly evaluates general e-government portals, this study delivers an in-depth assessment of a municipal public healthcare digital service and presents targeted strategic suggestions derived from quadrant prioritization. The results emphasize the essential importance of trust-related factors, especially data protection and system dependability, in enhancing public trust in local e-health services

Keywords: E-GovQual; importance performance analysis; service quality; e-Health; e-Government.

I. INTRODUCTION

The use of information technology in the public service sector helps the government streamline work processes, accelerate service delivery, and oversee strategic assets to enhance the quality of life [1]. In line with this, the Indonesian government issued the Electronic-Based Government Regulation (SPBE), one of its policies to support the digital transformation of services. The implementation of SPBE is also carried out by the Surabaya City Government through the development of various digital public services, also known as e-government services, such as the E-Health website, which provides health-related services [2]. The E-Health website service is an online platform for registering at community health centers and hospitals managed by the Surabaya City Health Office, as a solution to patient queues at these facilities [3]. With the E-Health website service, residents can register online and arrive at the estimated time stated on their queue ticket.

From 2021 to 2023, the number of users of the E-Health website service increased, indicating that the service was being used effectively and was actively participating in the lives of Surabaya residents, particularly as the main means of accessing health services [4]. However, there were still challenges in its implementation. Based on the latest user complaints to the Surabaya City Health Office, some users continue to experience problems with the E-Health website service. Some of these problems include registration failures, accounts being blocked for no apparent reason, and users having difficulty using the E-Health website service. These obstacles can impact the user experience, thereby reducing user satisfaction and trust in the services provided [5]. Therefore, a comprehensive evaluation of the quality of the E-Health website service, which is part of Surabaya City's e-government, is needed.

The E-GovQual method can be used to measure the service quality of e-government or digital services provided by the government [6]. This method evaluates service quality through four dimensions: specifically, efficiency, trust, reliability, and citizen support. Furthermore, to identify more specific indicators that meet user expectations, an Importance-Performance Analysis (IPA) is conducted, taking into account service performance based on user perception and the importance of the website service [7]. This study uses the

E-GovQual and IPA methods to assess the quality of Surabaya City's E-Health website. Several previous studies have used a combination of these two methods, namely the study by Yuhefizar, Utami, and Sudiman, which aimed to measure service quality from the perspective of users of the Tanah Datar City e-government website portal. The study produced findings in the form of indicators prioritized for improvement, namely government response, information updates, and user feedback [8]. Meanwhile, the study by Muthmainah, Prawira, and Ilhamsyah aimed to evaluate the quality of the West Kalimantan Provincial Health Office's website using E-GovQual and IPA, and to provide recommendations for improvement. The study found that the website's quality was poor, with low conformity between performance and expectations. It also identified dimensions that needed to be prioritized for improvement, namely reliability and citizen support [7].

Although a number of previous studies have used a combination of the E-GovQual and IPA methods, to date, there has been no research specifically assessing the quality of E-Health services in Surabaya. While many earlier studies have utilized the E-GovQual and IPA approaches to assess e-government services, the majority typically concentrate on identifying descriptive gaps and classifying them into quadrants. Insufficient emphasis has been placed on understanding the strategic impacts of quality aspects in highly sensitive digital public services, like municipal e-health platforms. This research tackles that limitation by incorporating gap analysis and IPA findings into a strategic evaluation at the indicator level features in the context of a smart city. This research broadens previous applications beyond contextual analysis and offers a deeper analytical insight into service quality performance in digital healthcare services. This research also offers novelty in a larger number of respondents than previous studies, data collection methods that combine online and offline to reduce digital literacy bias, and the preparation of more comprehensive recommendations based on IPA analysis results. This research also provides a real contribution to the Surabaya City Government by helping determine service improvement priorities to support the future improvement of the quality and reliability of E-Health services. Based on these two studies, the E-GovQual and Importance-Performance Analysis (IPA) methods have been proven effective and relevant for assessing e-government quality. This study focuses on measuring the quality of E-Health services in Surabaya and identifying indicators to prioritize for service improvement. Using the E-GovQual and IPA methods, this study aims to provide recommendations for improving the quality of E-Health services in Surabaya.

II. METHOD

This study uses a quantitative approach with several stages: problem identification, literature review, population and sample selection, questionnaire development, pilot testing, data collection, data analysis, recommendations for improvement, and conclusions and suggestions. The study began with problem identification, which was grounded in the observation of various challenges encountered by users of the Surabaya City E-Health platform. This stage was followed by a comprehensive literature review to build the theoretical framework of the study, particularly concerning the E-GovQual model and the Importance Performance Analysis (IPA) method. Subsequently, the population and sampling procedures were determined. The population comprised Surabaya residents aged 15 years and above who had experience using the E-Health service. According to data from the Surabaya City Statistics Agency, this population totaled 2,351,685 individuals in 2024 [9]. The required sample size was calculated using the Isaac and Michael formula with a 5% margin of error to ensure statistical adequacy [10]. The Isaac and Michael formula has also been used in several previous studies [11, 12]. A purposive sampling technique was implemented, with respondents required to have used the E-Health service at least twice within the past year to ensure sufficient familiarity with the system. Therefore, the minimum number of respondents required is 384. Following the sampling stage, the questionnaire was developed based on the dimensions and indicators of the E-GovQual model. Prior to large-scale distribution, a pilot test was conducted to evaluate the instrument's validity and reliability. Necessary revisions were made when required before proceeding to full data collection. After the data were gathered, the analysis was conducted in two stages. The first stage involved E-GovQual gap analysis to assess the differences between users' expectations and perceived performance. The second stage applied IPA to categorize each indicator into priority quadrants. The findings from these analyses were then used to formulate indicator-level improvement recommendations, which ultimately informed the study's conclusions and suggestions.

A. Questionnaire Design

This questionnaire was developed based on the E-GovQual method designed by Papadomichelaki and Mentzas [13]. The E-GovQual method is a model developed to measure public perception of the quality of

e-government services, comprising 4 dimensions and 21 indicators: Efficiency, Trust, Reliability, and Citizen Support, as shown in Fig.1 [14]. All of these indicators theoretically contribute to shaping overall service quality, particularly in e-government services. The Efficiency dimension explains the convenience, speed, and effectiveness of utilizing e-government services. The Trust dimension concerns security, privacy, and user confidence in service providers' honesty. The Reliability dimension discusses the consistency, accuracy, and reliability of the system in providing services without deficiencies. Meanwhile, the Citizen Support dimension assesses the level of government assistance, the ease of accessing it, and the government's response to community needs. These four dimensions support each other and form the basis for a comprehensive evaluation of service quality.

These indicators will later be used as questionnaire statements and adjusted to field conditions related to E-Health services, using the Importance-Performance Analysis (IPA), namely user expectations and service performance in Surabaya City's E-Health services. The relationship between E-GovQual indicators and IPA is through a service quality evaluation approach based on perceptions, in which each indicator is evaluated on two dimensions: importance and performance. The detailed research items derived from these indicators are presented in Table I. Thus, the results of the IPA mapping will enable service quality indicators to be determined in the improvement priority quadrant and provide strategic insight into which indicators have the most influence on overall service satisfaction and quality.

B. Data Collection

The method for collecting data in this research involved sharing questionnaires online via Google Forms, disseminated through social media platforms, and offline by visiting E-Health service users directly at several health centers in Surabaya. This data collection technique was chosen because it is more effective in reaching the target respondents, as it can cover various segments of E-Health service users. Although the sample size determined using the Isaac and Michael formula is considered valid, this study may still be subject to sample bias. To reduce this bias, the questionnaire was shared via multiple public platforms and was not solely aimed at student populations. However, the results must be viewed carefully when applying them to groups with varying demographic traits. Future studies could utilize stratified or quota sampling methods to ensure a more even distribution of respondents.

C. Data Analysis

The data will be analyzed using two methods: E-GovQual and Importance-Performance Analysis (IPA). Data that has been tested for validity and reliability will be analyzed by calculating the mean to assess the level of alignment between the service's performance and expectations from user perspectives. Then, calculations will be performed to determine the level of the gap as described in (1), so that an overview of the E-Health service aspects from user perceptions can be obtained.

$$Q_i = \bar{X}_i - \bar{Y}_i \quad (1)$$

Explanation:
Q_i = Quality level/gap
$\bar{X}_i$ = Average performance score for each statement i
$\bar{Y}_i$ = Average importance score for each statement i

Importance Performance Analysis (IPA) is performed to plot service metrics in a Cartesian graph according to their importance and performance levels. The results of this analysis will identify indicators that are prioritized for E-Health service improvement. The quadrant mapping in the IPA method can be seen in Fig. 2. The details of each quadrant can be described as follows, Quadrant I includes indicators that are considered important by users but their performance does not meet expectations, resulting in lower user satisfaction and service quality. Quadrant II contains indicators considered important and their performance meets user expectations, indicating relatively high levels of satisfaction and service quality. Quadrant III includes indicators regarded as less important, accompanied by relatively low performance levels. Lastly, Quadrant IV contains indicators perceived as less important but characterized by excessively high performance.

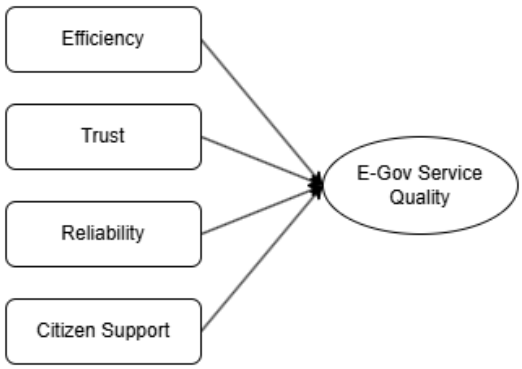

Fig. 1 Conceptual model of E-GovQual

TABLE I
RESEARCH ITEM OF THE E-GOVQUAL METHOD

Dimension	Code	Item
Efficiency	EF1	The structure of the E-Health service website is straightforward and simple to understand
	EF2	The search feature on the E-Health service website is effective
	EF3	The menu structure on the E-Health service website is organized so well
	EF4	The E-Health service website is well customized to fit the requirements of every user
	EF5	The information displayed on the E-Health service website is highly detailed
	EF6	The information displayed on the E-Health service website is the updated information
	EF7	The information regarding data entry on the E-Health service website is quite complete
Trust	TR1	User personal data, such as NIK on the E-Health service website, is securely protected
	TR2	Personal data is used only to ensure that users match the data provided on the E-Health service website
	TR3	Data provided by users on the E-Health service website is securely archived
	TR4	Data provided on the E-Health service website is used only for the reasons described above
Reliability	RL1	The E-Health service website displays quickly (without any waiting time)
	RL2	This E-Health service website always accessible whenever you require it
	RL3	This E-Health service website executes the task effectively on the initial attempt
	RL4	This E-Health service website provides timely service
	RL5	The display on the E-Health service website can appear quickly
	RL6	This E-Health service website runs well on default browsers (such as Mozilla, Chrome, and Safari)
Citizen Support	CS1	E-Health service staff show sincere curiosity in addressing user issues
	CS2	E-Health service staff respond quickly to user questions
	CS3	E-Health service staff possess the expertise to respond to user inquiries
	CS4	E-Health service staff have the ability to convey to users that they can trust and feel confident in using the E-Health service website

Fig. 2 IPA diagram

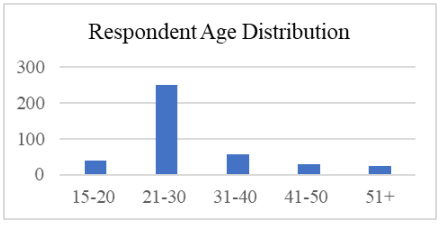

Fig. 3 Respondent age distribution

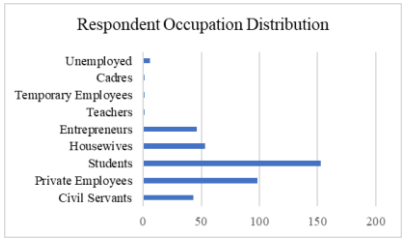

Fig. 4 Respondent occupation distribution

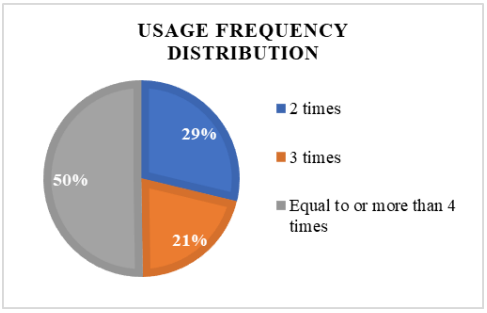

Fig. 5 Usage frequency distribution

A. Pilot Test

This pilot test was carried out to verify that the research questionnaire for respondents was both valid and reliable. A total of 30 participants took part in this pilot test. Validity testing using Pearson's correlation was conducted by measuring the correlation between the question scores and the overall score, and the results used were those of the overall score. The research instrument was declared valid if the calculated r value was ≥ the r-table value, but if the calculated r value was < the r-table value, the instrument was declared invalid [15]. In Table II, the validity test results in the performance and importance sections indicate that the results are valid, consistent with the theory that the calculated r value is ≥ the r-table value.

TABLE II
VALIDITY TEST RESULTS

Code	Performance			Importance		
	r value	r-table	Validity	r value	r-table	Validity
EF1	0,506	0,361	VALID	0,675	0,361	VALID
EF2	0,744	0,361	VALID	0,812	0,361	VALID
EF3	0,788	0,361	VALID	0,555	0,361	VALID
EF4	0,570	0,361	VALID	0,693	0,361	VALID
EF5	0,796	0,361	VALID	0,715	0,361	VALID
EF6	0,623	0,361	VALID	0,744	0,361	VALID
EF7	0,654	0,361	VALID	0,697	0,361	VALID
TR1	0,786	0,361	VALID	0,840	0,361	VALID
TR2	0,865	0,361	VALID	0,772	0,361	VALID
TR3	0,829	0,361	VALID	0,766	0,361	VALID
TR4	0,786	0,361	VALID	0,501	0,361	VALID
RL1	0,497	0,361	VALID	0,650	0,361	VALID
RL2	0,734	0,361	VALID	0,813	0,361	VALID
RL3	0,813	0,361	VALID	0,605	0,361	VALID
RL4	0,793	0,361	VALID	0,597	0,361	VALID
RL5	0,729	0,361	VALID	0,723	0,361	VALID
RL6	0,751	0,361	VALID	0,851	0,361	VALID
CS1	0,777	0,361	VALID	0,402	0,361	VALID
CS2	0,863	0,361	VALID	0,650	0,361	VALID
CS3	0,666	0,361	VALID	0,802	0,361	VALID
CS4	0,817	0,361	VALID	0,767	0,361	VALID

Reliability testing was conducted using Cronbach's alpha on instruments with several possible answers, each considered correct. An instrument can be stated as reliable if the alpha or r value is greater than or equal to 0.6. If the alpha or r value is less than 0.6, the reliability test results are considered poor [15]. Based on Table III, both performance and importance can be considered reliable. The Cronbach's alpha values for both are above 0.60. Consequently, it can be inferred that the survey is reliable and appropriate for application in this research.

B. E-GovQual Analysis

At this step, two calculations are performed, namely calculating the gap between the performance value and the importance value to measure service quality, and calculating the level of suitability. Table IV shows that the overall gap level is negative with an average of -0.34. The lowest gap level is found in indicator RL6 with a value of -0.17 and the highest in indicator RL2 with a value of -0.53. This indicates that the services still do not meet user expectations. The level of suitability has an average of 92% suitability, and the indicator with the highest level of suitability is indicator RL6.

C. Importance Performance Analysis (IPA)

In creating an IPA diagram, coordinate points are required, which are obtained from the Performance and Importance values for each indicator. The Performance value will be on the x-axis, while the Importance value will be on the y-axis. The Performance value is calculated from the mean score of each indicator's Performance, and the Importance value is calculated from the mean score of each indicator's Importance. The intersection point on the x-axis is taken from the overall mean Performance value. Meanwhile, the intersection point on the y-axis is taken from the overall mean Importance value. Fig. 6 shows the result of mapping the indicators on the IPA diagram.

TABLE III
REABILITY TEST RESULTS

Aspects	*Cronbach's Alpha*	Value Standard	Reliability
Performance	0,931	0,600	Reliable
Importance	0,920	0,600	Reliable

TABLE IV
GAP AND SUITABILITY RESULTS

Code	Performance	Importance	Gap	Suitability
EF1	3,93	4,14	-0,21	95%
EF2	3,93	4,15	-0,23	95%
EF3	3,95	4,15	-0,20	95%
EF4	3,91	4,20	-0,29	93%
EF5	3,82	4,14	-0,31	92%
EF6	3,88	4,22	-0,34	92%
EF7	3,88	4,15	-0,28	93%
TR1	3,80	4,27	-0,47	89%
TR2	3,81	4,23	-0,42	90%
TR3	3,83	4,20	-0,37	91%
TR4	3,76	4,29	-0,52	88%
RL1	3,76	4,07	-0,32	92%
RL2	3,82	4,35	-0,53	88%
RL3	3,87	4,25	-0,38	91%
RL4	3,86	4,27	-0,42	90%
RL5	3,77	4,11	-0,34	92%
RL6	3,90	4,07	-0,17	96%
CS1	3,87	4,23	-0,36	91%
CS2	3,81	4,21	-0,40	91%
CS3	3,94	4,24	-0,30	93%
CS4	3,90	4,18	-0,28	93%
Average	**3,86**	**4,19**	**-0,34**	**92%**

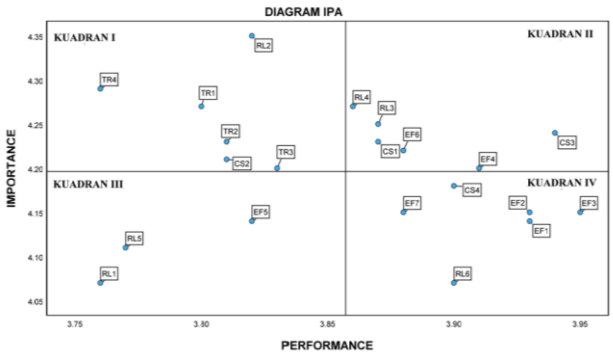

Fig. 6 Results of the IPA diagram

1) *Quadrant I* : In this quadrant, there are six indicators that are prioritized for improvement, namely TR1, TR2, TR3, TR4, RL2, and CS2. The four indicators in the Trust dimension (TR1-TR4) rank highest because personal data security remains a major concern for healthcare service users in Indonesia. In contrast to typical administrative e-government services, digital health platforms handle extremely sensitive personal and medical data. Any perceived flaws in data protection systems could not only diminish user satisfaction but also impact the likelihood of using the service again. In Surabaya's E-Health system, serving as a key platform for healthcare registration, poor trust performance can directly affect service availability and public trust in the management of digital health. Low performance on trust indicators suggests that E-Health Surabaya must improve its security mechanisms, transparency in data management, and communication of risks to users. The RL2 indicator related to website accessibility is also included in Quadrant I. This may be triggered by high usage loads during community health center registration periods or server infrastructure limitations, as found in [16], which shows that reliability is one of the most vulnerable aspects of regional e-government services.

2) *Quadrant II* : In this quadrant, there are six indicators whose performance can be maintained, namely EF4, EF6, RL3, RL4, CS1, and CS3. Several efficiency indicators and community support show good performance and are expected to be maintained. The dominance of the efficiency dimension in this quadrant indicates that the structure, information updates, and navigation process of E-Health are in line with the usage patterns of the Surabaya community, who tend to be familiar with accessing digital services provided by the Surabaya city government, such as the Klampid application for accessing civil administration services or other applications. The prevalence of efficiency and reliability metrics in this quadrant indicates that users view the operational and functional elements of the system as consistent and in sync with their digital behaviors. Preserving these characteristics is crucial, as a drop in system responsiveness or information precision could swiftly diminish overall satisfaction, especially in

a service that acts as the main gateway for public healthcare registration.

3) *Quadrant III* : In this quadrant, there are three indicators with low priority for improvement, namely RL1, RL5, and EF5. Indicators RL1, RL5, and EF5 show that although users consider the display speed and detail of information on E-Health services to be less than optimal, the level of expectation for these three aspects is quite low, making them a non-urgent priority for improvement. This finding may indicate that users value effective access and data protection more that interface speed and the depth of information. Provided that the system accomplishes its main purpose to enable health service registration and small performance delays or a lack of detail might not greatly influence overall satisfaction.

4) *Quadrant IV :* In this quadrant, there are six indicators that are regarded as less significant and excessive, namely EF1, EF2, EF3, EF7, RL6, and CS4. All indicators in Quadrant IV are considered overkill, possibly because even though their performance is already good, users do not see them as important factors in the use of E-Health services. The positioning of RL6 and various efficiency metrics in this quadrant indicates that technical compatibility and interface clarity are viewed as standard expectations instead of unique attributes. In digital public services, as usability meets an acceptable level, users may focus on more important factors like data security and system dependability

The results of indicator mapping using Importance Performance Analysis (IPA) show that six indicators are in Quadrant I and should be prioritized for improvement. Four indicators from the Trust dimension (TR1, TR2, TR3, TR4) dominate this quadrant, indicating that personal data security, transparency in data utilization, and reliability of information storage are major concerns for users. The dominance of these trust indicators not only reflects gaps in service performance but also indicates growing public concern about the increasing risk of data leaks and cyber threats in the provision of digital services in Indonesia. This finding is in line with [17] and [18], which highlight that user confidence greatly affects satisfaction and the intention to reuse digital health services. Nonetheless, in contrast to earlier E-GovQual research where efficiency or usability factors were more significant, the highlighted importance of trust indicators in this study indicates that data protection issues have gained greater relevance in municipal healthcare platforms. This change might indicate increased public awareness regarding personal data protection in Indonesia's digital governance landscape. Therefore, it can be concluded that the dimension of trust is an important element that affects service quality and user experience in e-health systems. In addition, the RL2 (Reliability) and CS2 (Citizen Support) indicators, which are also located in Quadrant I, confirm the results that users expect services that are always available and provide quick responses. This reflects users' expectations of e-health services that are real-time and responsive. When service availability is unstable or staff responses are slow, users tend to be more hesitant to adopt the system. A study [19] shows that poor IT infrastructure quality is closely related to data processing delays and inaccessible services. Therefore, service providers must ensure the availability of adequate IT infrastructure to support the best service quality. Furthermore, research [8] supports these findings and concludes that low public support has a direct impact on overall service quality. These results also correspond with past research [20], [21], which highlight reliability, system performance, trust, and user satisfaction are essential factors for effective digital service adoption and influencing ongoing usage patterns. In comparison, the present research confirms that in the context of municipal e-health services, reliability and responsiveness are not merely supporting technical attributes but strategic factors influencing sustained public acceptance.

D. Improvement Recommendations

Based on the results of the analysis of the quality of E-Health services in Surabaya City using the E-GovQual and IPA methods, it appears that E-Health services still need improvement and do not yet fully meet user expectations. The results of indicator mapping using IPA show that there are several indicators in quadrant I, which means that these indicators are considered important by users but their performance does not yet meet user expectations. The indicators that are priorities for improvement in quadrant I include TR1, TR2, TR3, TR4, RL2, and CS2. According to these results, the author offers suggestions for enhancements aimed at improving the quality of E-Health services in Surabaya City, as shown in Table V.

III. CONCLUSION

Based on the findings of research concerning the quality of E-Health services in Surabaya City using the E-GovQual and Importance Performance Analysis (IPA) methods, it was concluded that the overall quality of services did not meet user expectations. This can be seen from the gap values of all 21 indicators in the four dimensions, namely efficiency, trust, reliability, and community support, which had negative values. The

results of the analysis using Importance Performance Analysis (IPA) showed that there were six indicators in Quadrant I that were prioritized for improvement, namely indicators TR1, TR2, TR3, TR4, RL2, and CS2. This study provides a number of practical strategic implications for decision makers and system developers. It is necessary to strengthen the integration of cybersecurity protocols, including the implementation of multi-layered authentication mechanisms, secure data storage architecture, and transparency in privacy policies to increase public trust. Several more detailed technical recommendations have been described in the previous section to support these strategic steps. This study has several limitations, one of which is that the number of participants only came from E-Health service users in the city of Surabaya, so the results cannot be applied generally in other areas. Future research may address these limitations by employing longitudinal designs, incorporating stratified sampling across different regions, and integrating perceptual assessments with technical system performance evaluations to obtain a more comprehensive understanding of digital public service quality.

ACKNOWLEDGEMENT

The author expresses gratitude to the Heads of Surabaya Public Health Centers and the Surabaya City Health Department for granting permission to conduct this study and providing the necessary respondent data. The academic supervisor is also appreciated for providing valuable guidance and thoughtful critique throughout the research process.

TABLE V
IMPROVEMENT RECOMMENDATIONS

Indicator	Recommendations	
	E-GovQual [22]	**Other Sources**
TR1	• Website developers can implement security and privacy measures to ensure users feel secure while using the service. • There needs to be an official statement from the relevant parties to users about service policies in maintaining the security and privacy of interactions with the website.	Website developers must incorporate CAPTCHA elements into login or registration forms on websites [23].
TR2		
TR3		There needs to be transparency in digital security through outreach to users and policies or procedures used to build user trust [24].
TR4		Provide users with clear explanations of service procedures on the website so that users understand that the services comply with applicable regulations [24].
RL2	Ensuring the availability of sufficient hardware, software, and communication capacity to meet demand during peak periods.	Conducting regular checks and maintenance to ensure that services are available and accessible anytime [16].
CS2	• Contact details must be easily accessible on the website, both electronically (such as email and live chat) and conventionally (such as phone numbers or office addresses). • Easy-to-use guides, such as help pages or FAQs, must be available.	Conducting direct inspections and establishing SOPs regarding the response time for user complaints, for example, within 24 hours, users who submit complaints need to be contacted again [7].

REFERENCES

[1] Y. Andriyan, A. M. Rajab, A. C. Pamungkas, S. Muhamad, and R. Rahakratat, "Transformasi E-Government Menuju Good Governance di Pemerintah Kabupaten Sorong," *Samakta: Jurnal Pengabdian Kepada Masyarakat*, vol. 1, no. 2, pp. 24–35, Jul. 2024, doi: 10.61142/samakta.v1i2.127.

[2] A. Rusbaya and E. Ernawaty, "Penerapan Layanan E-health pada Puskesmas Kota Surabaya dalam Memberikan Pelayanan kepada Masyarakat: Literature Review," *Faletehan Health Journal*, vol. 11, no. 02, pp. 193–201, Aug. 2024, doi: 10.33746/fhj.v11i02.699.

[3] F. Eka Setyawan Putra and I. Prabawati, "Evaluasi Aplikasi E-Health di Puskesmas Jagir Kota Surabaya," *Jurnal Publika*, vol. 7, no. 8, 2019, doi: https://doi.org/10.26740/publika.v7n8.p%25p.

[4] M. I. H. Setiawan, R. A. S. Prayoga, and A. Kusumawati, "Analisis Kualitas Layanan E-Health Surabaya: Pendekatan Integratif E-Servqual dan Importance Performance Analysis (IPA)," *Jurnal Sistem Informasi dan Informatika (Simika)*, vol. 7, no. 2, pp. 255–267, Jul. 2024, doi: 10.47080/simika.v7i2.3409.

[5] A. Dhani, T. Afrizal, T. Yuniningsih, and A. Subowo, "Analisis Penerapan Responsive Governance pada Aplikasi Kanal Aduan Sapa Mbak Ita di Kota Semarang," *Journal of Public Policy and Management Review*, no. 2, Apr. 2025, doi: 10.14710/jppmr.v14i2.49890.

[6] A. Muhammad Riesta, M. Januar Pribadi, C. Learns Prasetyo, B. Widyo Tenggoro, B. Nadhiroh, and T. Lathif Mardi Suryanto, "Evaluasi Kualitas Layanan Website E-Government Terhadap Kepuasan Pengguna menggunakan E-Govqual dan IPA," *Jurnal Ilmiah Teknologi Informasi dan Robotika*, vol. 3, no. 2, Dec. 2023, doi: 10.33005/jifti.v3i2.57.

[7] R. F. Muthmainah, D. Prawira, and I. Ilhamsyah, "Analisis Kualitas Website Dinas Kesehatan Provinsi Kalimantan Barat Menggunakan Metode E-GovQual dan Importance Performance Analysis (IPA)," *Jurnal Tekno Kompak*, vol. 17, no. 2, p. 61, Aug. 2023, doi: 10.33365/jtk.v17i2.2652.

[8] Y. Yuhefizar, D. Utami, and J. Sudiman, "The E-govqual and Importance Performance Analysis (IPA) Models Analysis: Review a Web Service Quality of E-government," *JOIV : International Journal on Informatics Visualization*, vol. 8, no. 2, p. 777, May 2024, doi: 10.62527/joiv.8.2.1196.

[9] Badan Pusat Statistik Kota Surabaya, "Jumlah Penduduk Menurut Kelompok Umur dan Jenis Kelamin di Kota Surabaya, 2024 - Tabel Statistik - Badan Pusat Statistik Kota Surabaya." Accessed: Apr. 29, 2025. [Online]. Available: https://surabayakota.bps.go.id/id/statistics-table/3/WVc0MGEyMXBkVFUxY25KeE9HdDZkbTQzWkVkb1p6MDkjMyMzNTc4/jumlah-penduduk-menurut-kelompok-umur-dan-jenis-kelamin--ribu-jiwa--di-kota-surabaya.html?year=2024

[10] Sugiyono, *Metode Penelitian Kuantitatif, Kualitatif dan R&D*, 25th ed. Alfabeta, 2017.

[11] R. Ekasari, D. Arif, and M. Nurcholis, "Service Quality And After-Sales Service On IoT-Based Car User Satisfaction And Repeat Purchase Services In Indonesia," *ABAC Journal*, vol. 43, no. 3, 2023, doi: 10.59865/abacj.2023.33.

[12] S. Romlah, A. Imron, Maisyaroh, A. Sunandar, and Z. A. Dami, "A free education policy in Indonesia for equitable access and improvement of the quality of learning," *Cogent Education*, vol. 10, no. 2, 2023, doi: 10.1080/2331186X.2023.2245734.

[13] X. Papadomichelaki and G. Mentzas, "E-GovQual: A multiple-item scale for assessing e-government service quality," *Gov. Inf. Q.*, vol. 29, no. 1, pp. 98–109, Jan. 2012, doi: 10.1016/j.giq.2011.08.011.

[14] T. E. Wijatmoko, "E-Government Service Quality Using E-GovQual Dimensions Case Study Ministry of Law and Human Rights DIY," *Proceeding International Conference on Science and Engineering*, vol. 3, pp. 213–219, Apr. 2020, doi: 10.14421/icse.v3.500.

[15] C. Gunawan, *Mahir Menguasai SPSS (Mudah Mengolah Data Dengan IBM SPSS Statistic 25)*, 1st ed. Yogyakarta: Deepublish, 2020.

[16] M. H. N. Yahya, L. P. Sumirat, and B. Santoso, "Pengukuran Kualitas Layanan Sistem Kependudukan Online Menggunakan Metode E-Govqual dan IPA," *Progresif: Jurnal Ilmiah Komputer*, vol. 20, no. 1, p. 504, Feb. 2024, doi: 10.35889/progresif.v20i1.1797.

[17] R. Nurhikmah, M. R. Abdillah, and A. Arizal, "Servicescape dan Revisit Intention: Mekanisme dari Kepercayaan pada Layanan dan Kredibilitas Layanan di Pusat Layanan Kesehatan Kota Pekanbaru," *South East Asian Management Concern*, vol. 1, no. 2, pp. 74–82, May 2024, doi: 10.61761/seamac.1.2.74-82.

[18] M. N. Solihah and W. A. Meisari, "Gambaran Kepuasan Pengguna Aplikasi Mobile JKN Dengan Metode Analisis E-Servqual," *Termometer: Jurnal Ilmiah Ilmu Kesehatan dan Kedokteran*, vol. 2, no. 3, pp. 161–174, Jul. 2024, doi: 10.55606/termometer.v2i3.4117.

[19] S. F. Rahmi, N. H. Dewi, B. Hartono, and A. G. Daud, "Analisis Kualitas Software dan Hardware dalam Mendukung Efisiensi Layanan Rumah Sakit Berbasis Sistem Informasi," *RIGGS: Journal of Artificial Intelligence and Digital Business*, vol. 4, no. 2, pp. 4785–4791, Jul. 2025, doi: 10.31004/riggs.v4i2.1336.

[20] R. Pambudi, B. Berlilana, and G. Karyono, "Analysis of LMS Implementation Success Based on Information System Success and End-User Computing Satisfaction

Models," *JUITA: Jurnal Informatika*, vol. 13, pp. 177–186, Aug. 2025, doi: 10.30595/juita.v13i2.25963.

[21] R. Waluyo, T. Hariguna, and A. P. Wicaksono, "Analysis of Factor in User Intention to Use the Covid-19 Tracking Application," *JUITA : Jurnal Informatika*, vol. 10, no. 2, p. 251, Nov. 2022, doi: 10.30595/juita.v10i2.14360.

[22] X. Papadomichelaki and G. Mentzas, "E-GovQual: A multiple-item scale for assessing e-government service quality," *Gov. Inf. Q.*, vol. 29, no. 1, pp. 98–109, Jan. 2012, doi: 10.1016/j.giq.2011.08.011.

[23] D. Handayani, I. K. A. Purnawan, and Sasmita. Gusti Made Arya, "Evaluation of the E-Government Quality of Services (Case Study: X City Government)," *International Journal of Trend in Scientific Research and Development (IJTSRD)*, no. 4, 2020, Accessed: Mar. 03, 2026. [Online]. Available: https://www.ijtsrd.com/papers/ijtsrd30854.pdf

[24] A. L. Hanum, T. L. M. Suryanto, and A. Pratama, "Analysis of Service Quality Factors of Surabaya Single Window Website Using E-Govqual and IPA Models," *Eduvest - Journal of Universal Studies*, vol. 5, no. 7, pp. 6339–6355, Jul. 2025, doi: 10.59188/eduvest.v5i7.51467.