JTIM : Jurnal Teknologi Informasi dan Multimedia
p-ISSN : 2715-2529
e-ISSN : 2684-9151
https://journal.sekawan-org.id/index.php/jtim

Enhancing Governance: Evaluating E-Government Service Quality and Recommendations for Improvement in Suket Kepuharjo Sub-District

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Citation: Husin, H.; Hakim, L.; and huda, C. (**2025**). Enhancing Governance: Evaluating E-Government Service Quality and Recommendations for Improvement in Suket Kepuharjo Sub-District. JTIM: Jurnal Teknologi Informasi Dan Multimedia, 7(4), pp. 785-796 https://doi.org/10.35746/jtim.v7i4.835

Received: 15-07-2025
Revised: 02-10-2025
Accepted: 07-10-2025

Abstract: This study evaluates the quality of e-government services in Suket Kepuharjo Sub-District using the E-GOVQUAL framework and the Importance Performance Analysis (IPA) approach. The framework includes six dimensions: ease of use, trust, functionality, reliability, content, and citizen support. Data were collected through a structured questionnaire distributed to 37 respondents, with all variables meeting validity and reliability thresholds. The results showed a mean performance score of 3.45, slightly higher than the mean importance score of 3.42, resulting in an overall average gap of +0.014. Attributes with strong performance included secure data storage (gap = +0.29), clear website structure (gap = +0.08), and help page availability (gap = +0.19). However, several critical weaknesses were identified in Quadrant I, such as user ability to navigate the website (gap = -0.38), service responsiveness (gap = -0.25), information accuracy (gap = -0.25), and application compatibility across devices (gap = -0.15). These findings indicate that while e-government services moderately meet user expectations, there remains significant room for improvement, especially in usability, responsiveness, and information reliability. The integration of E-GOVQUAL and IPA offers a comprehensive and user-centred framework to guide systematic enhancements in digital public services.

Keywords: *E-governance, E-Govqual, Importance Performance Analysis (IPA), User Experience, Public Service Evaluation*

1. Introduction

E-Governance Quality refers to the application of information and communication technologies (ICTs) to improve access to and the delivery of government services, providing benefits for citizens, businesses, and government employees [1]. The implementation of e-governance is not only intended to enhance the efficiency and effectiveness of public service delivery but also to create tangible value for various stakeholders, including citizens, the private sector, and non-governmental organizations [1], [2].

In practice, e-governance represents a set of technology-driven processes that are reshaping interactions between governments and their constituents, with digital transformation playing a vital role in redefining these relationships [3] [4]. It holds

the potential to establish governance that is more efficient, responsive, transparent, and legitimate, while simultaneously creating new economic opportunities through the emergence of digital markets and innovative business models [1].

Despite its potential, e-governance continues to face significant global challenges related to administrative, legal, institutional, and technological barriers. Therefore, it must be viewed as an integral part of governance, rather than an isolated or additional component. As technology-related decisions increasingly enter the political sphere, this shift should be welcomed, because the true success of e-governance will be realized when the 'e' can be dropped, and the focus returns to governance itself [5][1].

Several previous studies have attempted to evaluate the quality of e-government services using different frameworks. Safitri et al. assessed the *LAPOR!* application in Indonesia through the E-GovQual model and identified reliability and content dimensions as the strongest determinants of user satisfaction [9]. Similarly, Wijatmoko and Siregar evaluated the quality of e-government services in the Ministry of Law and Human Rights DIY, highlighting the central role of trust in shaping public confidence [4]. Comparative studies in developing countries, such as India and the Philippines, also reported that infrastructure limitations and low digital literacy significantly hinder the effectiveness of rural e-government platforms [15].

Unlike these prior studies, the present research is focused on the local rural context of Suket Kepuharjo Sub-District, which has received limited scholarly attention. Moreover, while previous works primarily applied E-GovQual in isolation, this study uniquely integrates E-GovQual with the Importance Performance Analysis (IPA) approach. This combination not only measures service quality but also prioritizes critical areas for improvement from the citizens' perspective, providing a more practical and policy-oriented contribution. In this respect, the novelty of this research lies in offering a citizen-centered evaluation framework that is directly applicable to the realities of village-level e-government in Indonesia, where resource constraints and user readiness issues remain significant challenges.

2. Materials and Methods

This study employs a survey-based quantitative approach, targeting members of the community as respondents. The evaluation is grounded in the E-GOVQUAL framework,[6] which assesses the quality of e-government services across six key dimensions, each consisting of four specific indicators. These dimensions are: efficiency, trust, interaction environment functionality, reliability, information content and display, and citizen support [4]. This structured framework enables a comprehensive assessment of whether digital government services align with public expectations and meet the needs of the community effectively [7].

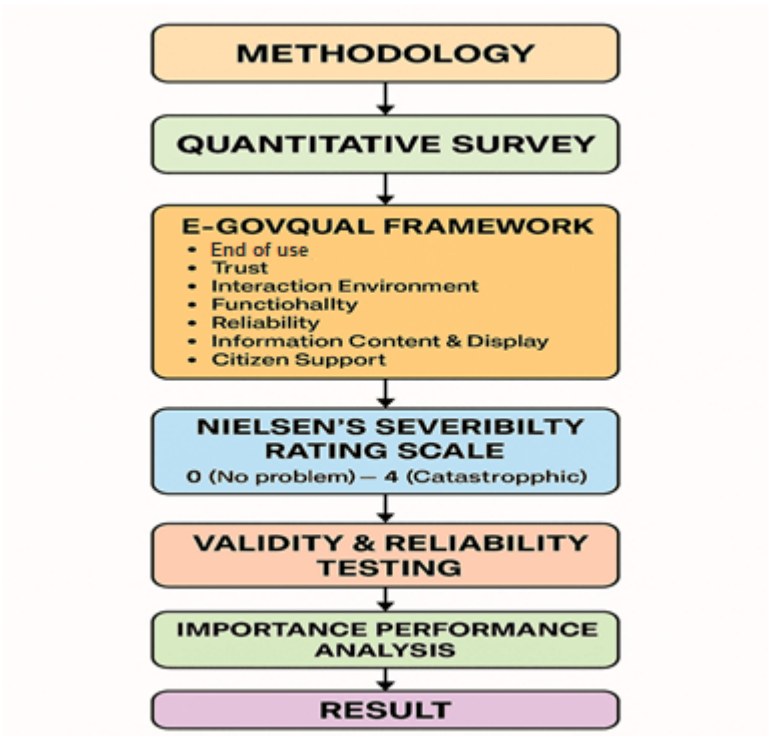

Figure 1. Flowchart of the Research Process for Evaluating E-Government Services.

The data collected in this study were analyzed using SPSS (Statistical Package for the Social Sciences) to conduct validity and reliability testing [8], as well as to support the application of the Importance Performance Analysis (IPA). This software facilitated accurate statistical computations, ensuring the robustness and credibility of the research findings.

To measure user perceptions and identify areas needing improvement, the study utilizes Nielsen's Severity Rating scale. Developed by usability expert Jakob Nielsen, this scale is widely recognized for evaluating the severity of usability issues in digital products and services [9], [10], [11]. The scale ranges from 0 to 4, where a score of 0 indicates no usability problem, while a score of 4 represents a catastrophic issue that severely prevents the user from completing a task [12]. This rating system helps classify, prioritize, and address usability problems in a systematic and efficient manner [13].

Table 1. Severity rating scale of table captions

Severity 0	No problem	The issue does not affect the user's ability to complete the task.
Severity 1	Cosmetic problem.	The issue is minor and does not affect the user's ability to complete the task, but it may affect the user's perception of the product or service.
Severity 2	Minor usability problem.	The issue affects the user's ability to complete the task, but the user can still complete the task with some difficulty.
Severity 3	Major usability problem.	The issue significantly affects the user's ability to complete the task, and the user may not be able to complete the task without assistance.
Severity 4	Catastrophic usability problem	The issue prevents the user from completing the task, and the user cannot complete the task without significant assistance.

By applying this method, researchers can classify and prioritize usability issues based on their severity, ensuring that the most critical problems are addressed first. This systematic approach helps enhance both the user-friendliness and the overall effectiveness of e-government platforms [11][14].

Therefore, this study employs the E-GOVQUAL framework as the basis for evaluating the quality of e-government services. A questionnaire was developed by constructing items that reflect the attributes associated with each dimension of E-GOVQUAL. The following section provides an overview of the six dimensions that constitute the E-GOVQUAL model.

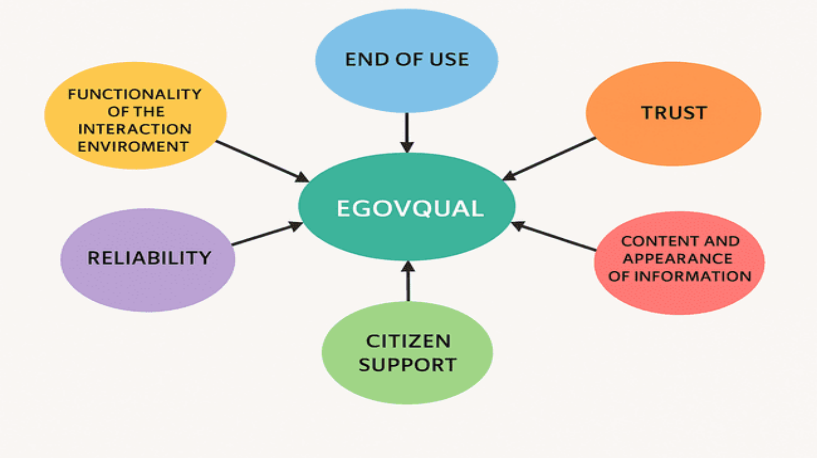

Figure 2. illustrates the Conceptual Research Model of E-GovQual.

Each dimension in this study consists of 6 variables and each dimension has 4 attributes: efficiency (4 items), trust (4 items), reliability (4 items), citizen support (4 items), information content & display (4 items) and interaction environment functionality (4 items) as presented in Table 2.

Table 2. Operational variables refer to the attributes within the e-GovQual dimension

No	Dimensions	Attributes
1	End of use (X1)	The website structure is clear and easy to understand. (X1.1) Accurate website search. (X1.2) Ease of remembering URLs. (X1.3) User's ability to use the Website. (X1.4)
2	Trust (X2)	Do not share personal information with others. (X2.1) Username and Password are secure. (X2.2) Secure archiving of personal data. (X2.3) The data provided is used only for the reasons submitted. (X2.4)
3	Functionality of the interaction environment (X3)	Ease of downloading information. (X3.1) Adequate Response Format. (X3.2) Accuracy in Access control. (X3.3) There is a help system on the website. (X3.4)
4	Reliability (X4)	Success in performing services appropriately. (X4.1) The application runs on the browser system well. (X4.2) Provide Services in a timely manner. (X4.3) The website is easy to access. (X4.4)

No	Dimensions	Attributes
5	Content and appearance of information (X5)	Ease of understanding information. (X5.1) The information provided is accurate. (X5.2) Suitability of website page size. (X5.3) The colors on the website are attractive. (X5.4)
6	Citizen support (X6)	Contact information. (X6.1) Service responsiveness. (X6.2) There is a help page. (X6.3) Website user questions are answered quickly. (X6.4)

3. Result and Discussion

3.1. Validity & Reliability Testing

This The respondents of this research were the people of Kepuharjo sub-district, Lumajang district with a total of 37 data collected from respondents obtained from questionnaires distributed using Google Form via WhatsApp and Telegram media. After the data is obtained, the next step is to analyze it. The first step is to test the validity and reliability to find out whether the questionnaire data is accurate and consistent.

Table 3. Result of validity testing

No	Item	r_{table}	r_{count}	Result	No	Item	r_{table}	r_{count}	Result
End of use (X1)					**Trust (X2)**				
1	X1.1	0.3246	0.814	Valid	1	X2.1	0.3246	0.332	Valid
2	X1.2	0.3246	0.835	Valid	2	X2.2	0.3246	0.784	Valid
3	X1.3	0.3246	0.694	Valid	3	X2.3	0.3246	0.779	Valid
4	X1.4	0.3246	0.622	Valid	4	X2.4	0.3246	0.595	Valid
Functionality of the interaction environment(X3)					**Reliability (X4)**				
1	X3.1	0.3246	0.865	Valid	1	X4.1	0.3246	0.867	Valid
2	X3.2	0.3246	0.884	Valid	2	X4.2	0.3246	0.919	Valid
3	X3.3	0.3246	0.870	Valid	3	X4.3	0.3246	0.902	Valid
4	X3.4	0.3246	0.826	Valid	4	X4.4	0.3246	0.774	Valid
Content and appearance of information (X5)					**Citizen support (X6)**				
1	X5.1	0.3246	0.893	Valid	1	X6.1	0.3246	0.843	Valid
2	X5.2	0.3246	0.865	Valid	2	X6.2	0.3246	0.418	Valid
3	X5.3	0.3246	0.776	Valid	3	X6.3	0.3246	0.540	Valid
4	X5.4	0.3246	0.751	Valid	4	X6.4	0.3246	0.378	Valid

The results of testing the validity of the questionnaire in this study can be seen from the validity index value of the r_{count} instrument in the r_{count} column, whether it is greater than the r_{table} in the r_{table} column with a significant probability value of 5% (0.05) which is 0.324,, whereas if r_{count} is greater than r_{table} then the item is said to be valid, shown in the results column. It can be seen based on table 3 above from the results column if all variables have valid values.

Table 4. Result of reliability testing

No	Variables	Cronbach Alpha
1	End of use (X1)	0.838
2	Trust (X2)	0.644
3	Functionality of the interaction environment (X3)	0.944
4	Reliability (X4)	0.916
5	Content and appearance of information (X5)	0.899
6	Citizen support (X6)	0.750

The reliability test conducted in this study aimed to assess the consistency of responses across each variable. This method offers a quick and accurate means of evaluating internal consistency through the calculation of Cronbach's alpha. An instrument is considered reliable when the Cronbach's alpha coefficient exceeds 0.60. As presented in Table 4, all variables in the study met this threshold, indicating acceptable reliability.

The Cronbach's alpha values for each dimension were as follows: efficiency (0.838), trust (0.644), interaction environment functionality (0.944), reliability (0.916), information content & display (0.899), and citizen support (0.750). These results confirm that the measurement instrument demonstrates satisfactory internal consistency across all constructs. Consequently, both the independent and dependent variables are deemed appropriate for subsequent statistical analysis following the completion of the validity and reliability assessments.

In this study, most dimensions achieved alpha values above 0.80, with particularly high reliability observed for interaction environment functionality (0.944) and reliability (0.916). These findings suggest that the items within these constructs are highly consistent and accurately measure the underlying concepts they are intended to represent. Similarly, information content & display (0.899) and efficiency (0.838) also demonstrated strong reliability, reinforcing the robustness of these dimensions.

3.2. Importance Performance Analysis (IPA)

Importance Performance Analysis (IPA) is a data analysis technique employed to evaluate the quality of e-Government services and to identify specific areas requiring improvement. This method is designed to assess the extent to which the quality of e-Government services aligns with users' expectations and perceptions. The analysis involves comparing the perceived performance and the perceived importance of various service attributes as reported by users. By doing so, it allows researchers to determine the priority level for improvements in service delivery. The analysis involves evaluating the performance level and importance level according to user perceptions, as well as determining the priority of service attributes for improvement. This analysis was carried out with the aim of determining the value of the gap between service performance perceived and the importance of services based on the average value of performance and importance of 24 predetermined attributes. If the gap value is positive (+) or > 0, it indicates that the performance of the service has met the interests of the user. Then, if the gap value is negative (-) or < 0, it indicates that the performance of the service has not met the interests of the user.

Table 5. Result IPA analysis

No	Attributes	Performance	Importance	Gaps
End of use				
1	The website structure is clear and easy to understand. ($X1._1$)	3.56	3.48	0.08
2	Accurate website search. ($X1._2$)	3.71	3.46	0.25
3	Ease of remembering URLs. ($X1._3$)	3.52	3.48	0.04
4	User's ability to use the Website. ($X1._4$)	2.98	3.36	-0.38
Trust				
1	Do not share personal information with others. ($X2._1$)	3.80	3.52	0.19
2	Username and Password are secure. ($X2._2$)	3.52	3.47	0.05
3	Secure archiving of personal data. ($X2._3$)	3.71	3.42	0.29

4	The data provided is used only for the reasons submitted. (X2.4)	3.43	3.39	0.04
Functionality of the interaction environment				
1	Ease of downloading information. (X3.1)	3.38	3.46	-0.08
2	Adequate Response Format. (X3.2)	3.58	3.46	0.12
3	Accuracy in Access control. (X3.3)	3.35	3.48	-013
4	There is a help system on the website. (X3.4)	3.71	3.46	0.25
Reliability				
1	Success in performing services appropriately. (X4.1)	3.38	3.31	0.07
2	The application runs on the browser system well. (X4.2)	3.20	3.35	-0.15
3	Provide Services in a timely manner. (X4.3)	3.38	3.52	-0.14
4	The website is easy to access. (X4.4)	3.48	3.36	0.12
Content and appearance of information				
1	Ease of understanding information. (X5.1)	3.32	3.35	-0.03
2	The information provided is accurate. (X5.2)	3.48	3.49	-0.25
3	Suitability of website page size. (X5.3)	3.46	3.39	0.07
4	The colors on the website are attractive. (X5.4)	3.32	3.31	0.01
Citizen support				
1	Contact information. (X6.1)	3.43	3.39	0.08
2	Service responsiveness. (X6.2)	3.23	3.48	-0.25
3	There is a help page. (X6.3)	3.58	3.39	0.19
4	Website user questions are answered quickly. (X6.4)	3.39	3.48	-0.09
e-GovQual Analysis		3,4541	3,4275	0,014

Thus it can be seen that there are gaps that have positive and negative values. It can be noted in the gap column in Table 5. As previously mentioned, data from respondents will be analyzed with the help of IPA (Importance-Performance Analysis) to determine the quality of e-government services in Kepuharjo Village, Lumajang District based on the user's or community's point of view. Furthermore, the level of conformity between the two is depicted in a Cartesian diagram.

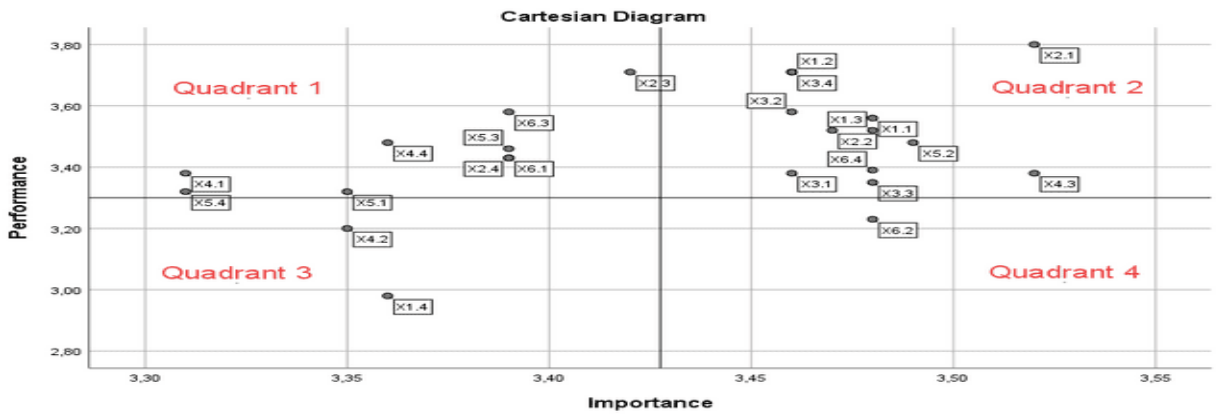

Figure 3. The outcomes derived from the Importance Performance Analysis (IPA) methods

The attributes positioned in Quadrant 1 are considered highly important by users, yet their performance is perceived to be low. This mismatch indicates that these attributes must receive top priority for improvement to ensure that e-government services meet public expectations. Interestingly, the analysis shows that factors such as secure data archiving (X2.3), ease of understanding information (X5.1), and accessibility of the website (X4.4) are clustered in this quadrant. These findings suggest that users place strong emphasis on data security, clear communication, and ease of access, which aligns with previous studies conducted in other regions of Indonesia and in developing countries such as India and the Philippines, where digital literacy and infrastructure limitations often pose significant challenges [15].

A surprising result is the inclusion of "attractive website colors" (X5.4) in Quadrant 1, which appears counterintuitive compared to more functional factors like service responsiveness (X6.2), which is placed in Quadrant 4. This may be due to user perception biases where visual aspects are easily recognized and rated by respondents, while responsiveness may go unnoticed if users have limited interaction with service personnel. Another plausible explanation is that the local government lacks adequate human resources to provide real-time responses, leading to uniformly low scores for responsiveness across the sample. Similar findings were reported by Ilieva G. who highlighted that many rural e-government platforms prioritize technical features over user support services due to staffing and budget constraints.

From a practical standpoint, this finding has significant implications for local government policy. First, while improving visual appeal (X5.4) may increase initial user satisfaction, functional performance factors such as responsiveness (X6.2) and service reliability (X4.1) should be prioritized in resource allocation. This suggests the need for capacity-building programs, such as training for front-line staff and establishing a dedicated helpdesk team to handle user inquiries more efficiently. Second, attributes in Quadrant 1—particularly those related to data security (X2.3) and website accessibility (X4.4)—should be addressed through infrastructure upgrades and policy reforms, such as clearer privacy policies and better server management, to enhance user trust and engagement.

Meanwhile, Quadrant 2 consists of attributes that are both high in importance and high in performance, such as accurate website searches (X1.2), help systems (X3.4), and timely service delivery (X4.3). These results indicate that the current system has established strong foundations in these areas and should focus on maintaining and monitoring these standards. For instance, continuous updates to search algorithms and help systems can ensure that these strengths do not deteriorate over time.

Attributes in Quadrant 3 have both low importance and low performance, such as user ability to use the website (X1.4) and application compatibility with browsers (X4.2). While these do not require immediate attention, they should not be entirely ignored, as improvements here could indirectly enhance user experience, especially as digital literacy improves over time.

Finally, Quadrant 4 contains attributes with low importance but high performance, most notably service responsiveness (X6.2). The placement of responsiveness here suggests that, from the users' perspective, real-time interaction with staff is not currently a top priority, possibly because users primarily rely on the self-service functions of the website. This pattern mirrors findings from rural e-government studies in Malaysia and Thailand, where citizens tend to interact

passively with government systems, reducing the perceived value of responsiveness [16]. However, despite its low ranking, responsiveness remains crucial for long-term sustainability. Therefore, governments should not drastically reduce investments in this area but instead reallocate resources strategically to balance both technical infrastructure and human service quality.

In summary, this quadrant analysis provides actionable insights for local governments. By prioritizing Quadrant 1 attributes, especially those related to data security, usability, and accessibility, while sustaining the strengths in Quadrant 2, policymakers can design more efficient strategies for improving e-government services. Furthermore, understanding why certain attributes, like responsiveness, are rated lower offers valuable context for designing targeted interventions, ultimately leading to better alignment between user expectations and government service delivery [17], [18]

3.3. Discussion

The findings of this study reveal several key insights into the quality of e-government services. Attributes related to data security (X2.3), ease of understanding information (X5.1), and website accessibility (X4.4) were rated as highly important by users but demonstrated low performance, placing them in Quadrant 1 of the IPA analysis. This suggests that while users prioritize security, usability, and accessibility, these aspects have not been adequately addressed by the current system. Several factors may explain this result. First, limited technical infrastructure and budget constraints at the local government level can hinder investments in server capacity, data encryption, and user-friendly design. Second, digital literacy among rural populations remains low, making it challenging for users to navigate and fully utilize online services. Finally, inadequate staffing and training may result in poor operational support, leading to inefficiencies in service delivery.

Conversely, factors such as responsiveness (X6.2) were found in Quadrant 4, indicating low importance but relatively high performance. This suggests that users in this region rely more on self-service features of the website and have limited expectations for direct interaction with government staff. This pattern aligns with studies conducted in Malaysia and Thailand, where rural communities tend to prioritize the availability of accurate information and basic accessibility over immediate responses from service personnel[18] However, this does not mean responsiveness is unimportant; rather, it highlights the need for governments to balance investments between frontline support and digital infrastructure [19].

The results also showed that attributes like help systems (X3.4), accurate search functions (X1.2), and timely service delivery (X4.3) were placed in Quadrant 2, demonstrating both high importance and high performance. These represent key strengths of the current system and should be maintained. The local government's efforts in these areas reflect effective resource allocation and indicate that some aspects of the e-government platform are already meeting user expectations.

In interpreting these findings through the E-GovQual framework, it becomes clear that while the six core dimensions—ease of use, trust, functionality, reliability, content, and appearance [20] —effectively capture critical aspects of service quality, additional factors such as accessibility, security, and privacy also play significant roles. These dimensions are strongly reflected in the attributes prioritized by users, underscoring the need for a broader evaluation framework. A key limitation of this study, however, is its reliance on subjective user perceptions, which may vary based on individual experiences and levels of digital literacy. Such variability introduces

potential inconsistencies when comparing results across different organizations or regions [3].

Implementing a comprehensive evaluation using E-GovQual and Importance-Performance Analysis (IPA) also presents practical challenges. The process demands significant time and resources for data collection, survey distribution, and detailed analysis [21]. Smaller local governments may find it difficult to sustain regular evaluations due to financial and human resource limitations. Furthermore, the complexity of the E-GovQual framework, with its multiple dimensions and attributes, requires specialized knowledge and expertise to ensure accurate interpretation [22]. Without proper training, there is a risk of misinterpretation, which could lead to ineffective policy decisions.

Comparatively, while frameworks like WebQual and ServQual are also used to evaluate service quality, E-GovQual offers a citizen-centric perspective tailored specifically to the unique characteristics of e-government services [23]. Its emphasis on trust, accessibility, and functionality makes it particularly relevant for understanding the experiences and expectations of citizens interacting with digital public services.

These findings carry important implications for policymakers and local governments. First, attributes in Quadrant 1 should receive top priority, particularly in improving data security, usability, and accessibility. This can be achieved through infrastructure investments, such as enhancing server stability, implementing advanced encryption, and redesigning user interfaces to be more intuitive. Second, sustained attention should be given to attributes in Quadrant 2 to ensure that high-performing areas remain consistent. Third, understanding why responsiveness is rated low in importance provides valuable insight: local governments may focus on automated features, such as FAQ pages and chatbots, while gradually improving direct service interactions. By aligning strategies with user priorities, governments can maximize the impact of limited resources, resulting in more efficient and user-friendly e-government service.

4. Conclusion

The quadrant analysis further revealed that critical attributes like data archiving security (X2.3), clarity of information (X5.1), and website accessibility (X4.4) fell into Quadrant 1, meaning they are highly important to users but currently underperforming. These findings align with similar studies in other developing countries, such as the Philippines and Malaysia, where challenges in infrastructure and human resource capacity hinder the optimization of e-government platforms. Furthermore, the attribute service responsiveness (X6.2) was placed in Quadrant 4, suggesting that users prioritize self-service features and system reliability over direct interaction with staff. This pattern is consistent with research in rural areas of Thailand, where citizens primarily engage passively with online services and have lower expectations for real-time government response.

From a methodological perspective, combining E-GovQual and IPA provides a structured, user-centred evaluation that effectively identifies service strengths and weaknesses. E-GovQual's six dimensions offer a comprehensive view of service quality, while IPA visually prioritizes attributes for improvement. However, the approach also has limitations. It relies heavily on subjective user perceptions, which can vary widely depending on individual experiences and digital literacy levels. Additionally, the process requires significant time, resources, and expertise, which may be challenging for smaller government agencies to sustain on a regular basis.

Practical implications of these findings suggest that local governments should prioritize improvements in Quadrant 1 attributes, particularly user training programs, capacity-building for government staff, and investment in internet infrastructure to enhance accessibility and usability. At the same time, attributes in Quadrant 2, such as accurate search functions (X1.2) and help systems (X3.4), should be consistently monitored and maintained to sustain public trust and satisfaction.

For future research, it is recommended to expand the scope of evaluation to include multiple regions or service types to allow for broader comparisons and benchmarking. Future studies may also integrate objective performance data, such as system logs and service response times, to complement subjective user perceptions. Additionally, comparative studies using other frameworks like WebQual or ServQual could provide deeper insights into the advantages and limitations of E-GovQual and IPA in different cultural and technological contexts.

In summary, while the current e-government services are moderately meeting user expectations, targeted interventions focusing on usability, accessibility, and responsiveness are essential for enhancing the overall quality and effectiveness of digital public services. By addressing these priority areas, governments can move closer to delivering equitable, efficient, and user-friendly e-government services.

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