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Evaluating User Satisfaction with the e-Kinerja Website Using Web Qual 4.0, PLS-SEM, and IPMA

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WebQual 4.0; e-Kinerja; user satisfaction; PLS-SEM; IPMA.

ABSTRACT
Digital performance management for civil servants requires an electronic government (e-government) website that is user-friendly, informative, secure, and reliable. This study evaluated user satisfaction with the e-Kinerja website at the Department of Industry, Transmigration, and Manpower of Tegal Regency by integrating WebQual 4.0, partial least squares structural equation modeling (PLS-SEM), and importance–performance map analysis (IPMA). A quantitative survey using a census sampling approach included all 75 civil servants who used the website. Data were collected using a questionnaire that measured usability quality, information quality, service interaction quality, and user satisfaction on a five-point Likert scale. Descriptive analysis indicated that all constructs were rated highly, with mean scores of 3.964 for usability quality, 3.944 for information quality, 4.060 for service interaction quality, and 4.060 for user satisfaction. The structural model explained 77.1% of the variance in user satisfaction ($R^2 = 0.771$). The estimated path coefficients were positive for usability quality ($\beta = 0.516$), service interaction quality ($\beta = 0.306$), and information quality ($\beta = 0.191$). The IPMA results identified usability quality as the most influential construct, while indicators USQ3, USQ1, SIQ1, INQ1, and INQ2 emerged as key priorities for improvement. However, several measurement indicators did not fully satisfy the recommended convergent validity and reliability criteria, and bootstrapping results were unavailable to establish the statistical significance of the structural relationships. Consequently, the structural findings should be interpreted as exploratory rather than confirmatory. Overall, the findings provide practical recommendations for improving workflow clarity, ease of learning, system accessibility and stability, and information accuracy to enhance user satisfaction with the e-Kinerja website.

INTRODUCTION

The digital transformation of public administration has expanded the adoption of electronic government (e-government) systems for planning, recording, monitoring, evaluating, and reporting civil servant performance. In Indonesia, digital performance management is institutionally supported by Regulation of the Minister of Administrative and Bureaucratic Reform No. 6 of 2022 and the National Civil Service Agency's guidelines for using e-Kinerja services (Badan Kepegawaian Negara, 2024; Kementerian Pendayagunaan Aparatur Negara dan Reformasi Birokrasi, 2022). Beyond replacing manual administrative

procedures, the e-Kinerja system is expected to enhance transparency, accountability, operational efficiency, and managerial decision-making. From an information systems perspective, achieving these outcomes depends not only on technical availability but also on system quality, information quality, service quality, system use, and user satisfaction (DeLone & & McLean, 2003).

At the Department of Industry, Transmigration, and Manpower of Tegal Regency, the e-Kinerja website is routinely used by civil servants to report work activities, document performance achievements, and facilitate supervisory validation. However, the effectiveness of the website is closely associated with the quality of the user experience. Users may encounter difficulties navigating menus, understanding reporting procedures, accessing their accounts, or completing data entry independently. Previous evaluations of e-Kinerja platforms have identified challenges related to login failures, slow system responses during peak usage periods, incomplete information, and complex reporting workflows (Aripin & & Hardiansyah, 2024; Permana et al., 2023; Suardika et al., 2024). These challenges may reduce system effectiveness and compromise data security and integrity, particularly when users rely on others to complete mandatory performance reporting tasks.

User satisfaction is therefore a critical indicator of information system success because it reflects the extent to which a system meets users' needs and expectations. WebQual 4.0 is widely used to evaluate website quality from the user's perspective through three primary dimensions: usability quality, information quality, and service interaction quality (Barnes & & Vidgen, 2002). Previous studies have applied WebQual to government, public service, and organizational websites, demonstrating the relevance of these dimensions to user satisfaction, although their relative contributions vary across organizational and technological contexts (Alfareza et al., 2024; Husaeni & & Mardiana, 2022; Romlih & & Budihartanti, 2023 ; Saifulloh & & Zulfa, 2023; Setiyani et al., 2023; Syam et al., 2024).

Recent studies have expanded the evaluation of digital public services by integrating website quality assessment models with technology acceptance frameworks, structural equation modeling, and improvement prioritization techniques. Prasetyo et al. (2024) emphasized that e-government acceptance is influenced by both citizen and government perspectives. (Hidayat et al., 2026) demonstrated the importance of systematic website quality assessment in supporting continuous improvements in public service delivery. Adi and Supriyanto (2025) integrated e-GovQual with the Technology Acceptance Model (TAM) to examine service quality and technology acceptance, while Rokhayadi and Supriyanto (2026) combined SERVQUAL, the Customer Satisfaction Index (CSI), and importance–performance analysis (IPA) to translate user evaluations into operational improvement priorities. At the international level, (Adyaputra et al., 2025) demonstrated that partial least squares structural equation modeling (PLS-SEM) and importance–performance map analysis (IPMA) could be integrated to explain user satisfaction and identify improvement priorities for local government websites. Similarly, (Rahmatullah et al., 2025) highlighted user satisfaction and net benefits as essential indicators of e-government system success in Indonesia.

Despite these developments, research integrating WebQual 4.0, PLS-SEM, and IPMA to evaluate the e-Kinerja website within local government agencies remains limited. Descriptive assessments can determine how users perceive website quality but cannot adequately estimate the relative contributions of individual quality dimensions to user satisfaction. PLS-SEM

enables the estimation of relationships among latent constructs and the assessment of their explanatory power, while IPMA combines the importance of constructs or indicators with their performance levels to identify actionable improvement priorities. Integrating these approaches provides a more comprehensive evaluation framework that connects website quality measurement, structural relationships, and practical recommendations. Accordingly, this study examined user satisfaction with the e-Kinerja website at the Department of Industry, Transmigration, and Manpower of Tegal Regency by assessing user perceptions, evaluating measurement and structural models, estimating the explanatory contributions of WebQual 4.0 dimensions, and identifying priority indicators for website improvement.

Specifically, this study aimed to (1) describe users' perceptions of usability quality, information quality, service interaction quality, and overall satisfaction with the e-Kinerja website; (2) evaluate the measurement model through assessments of convergent validity, discriminant validity, and internal consistency reliability; (3) examine the structural model by estimating path coefficients and the explanatory power of the WebQual 4.0 dimensions; and (4) identify priority indicators for website improvement using IPMA. The study was expected to provide both theoretical and practical contributions. Theoretically, it sought to extend the literature on e-government evaluation and information systems success by integrating website quality assessment, structural modeling, and performance prioritization within a unified analytical framework. Practically, the findings were intended to provide evidence-based recommendations for improving the e-Kinerja website, enhancing user satisfaction, and supporting more efficient, reliable, and accountable performance management in the public sector.

METHODS

This study employed a quantitative survey design to evaluate the e-Kinerja website used by civil servants at the Department of Industry, Transmigration, and Manpower of Tegal Regency. The study population comprised 75 civil servants who used the website, all of whom were included through a census sampling approach. Eligible respondents were active civil servants with prior experience using the e-Kinerja website who voluntarily completed the questionnaire.

Data were collected using a structured questionnaire and a literature review. The questionnaire employed a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The research instrument measured three WebQual 4.0 dimensions as exogenous constructs: usability quality, information quality, and service interaction quality. User satisfaction was measured as the endogenous construct.

The research was conducted in five stages. First, the research design, study population, and sampling strategy were established. Second, the WebQual 4.0-based questionnaire was developed and administered to the respondents. Third, descriptive statistics were used to summarize respondent characteristics and construct scores, while the measurement model was assessed using outer loadings, average variance extracted (AVE), Cronbach's alpha, composite reliability, the Fornell–Larcker criterion, heterotrait–monotrait (HTMT) ratios, and cross-loadings. Fourth, the structural model was evaluated using path coefficients, variance inflation factors (VIF), effect sizes (f^2), coefficients of determination (R^2 and adjusted R^2), and model fit indices. Importance–performance map analysis (IPMA) was also conducted to identify

improvement priorities. Finally, the findings were interpreted to formulate recommendations for improving website quality and user satisfaction. The evaluation procedures followed established partial least squares structural equation modeling (PLS-SEM) guidelines (Hair et al., 2022; Hair et al., 2017).

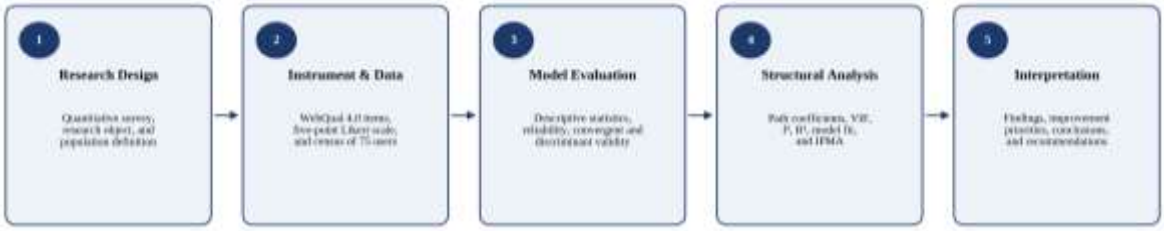


Figure 1. Research stages

Figure 1 summarizes the complete research workflow from design and population definition to interpretation and conclusion. The sequence ensures that the descriptive findings, measurement-model diagnostics, structural estimates, and IPMA priorities are interpreted within a single coherent evaluation process.

The structural model was specified as follows:

$$\eta = \beta_1\xi_1 + \beta_2\xi_2 + \beta_3\xi_3 + \zeta$$

where η represents user satisfaction; ξ_1, ξ_2, and ξ_3 represent usability quality, information quality, and service interaction quality, respectively; β represents the path coefficient; and ζ represents the residual error.

Table 1. Research constructs and indicators

Construct	Code	Operational meaning
Usability Quality	USQ1–USQ7	Ease of learning, navigation, workflow clarity, interface design, feature discoverability, error prevention, and independent use.
Information Quality	INQ1–INQ6	Accuracy, relevance, clarity, currency, completeness, and usefulness of information for performance reporting.
Service Interaction Quality	SIQ1–SIQ6	Access stability, response speed, account and data security, notification clarity, technical support, and support for work interaction.
User Satisfaction	SAT1–SAT6	Overall satisfaction, fulfillment of expectations, trust, efficiency, continued-use intention, and perceived benefits.

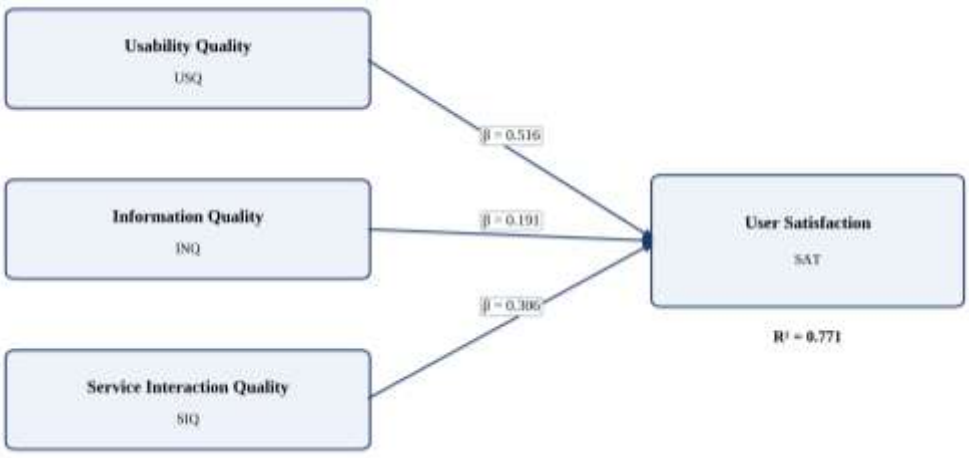


Figure 2. Construct factors of user satisfaction

Figure 2 illustrates the three WebQual 4.0 constructs examined as potential predictors of user satisfaction. The estimated path coefficients indicated that usability quality had the strongest positive association with user satisfaction, followed by service interaction quality and information quality. However, because the measurement model did not fully meet the recommended reliability and validity criteria and bootstrapping results were unavailable, these relationships were interpreted as exploratory associations rather than statistically significant or causally established effects.

RESULTS AND DISCUSSION

The respondent profile showed that supervisors or validators constituted the largest group, with 31 respondents (41.33%). Administrative or personnel users and operational staff each accounted for 22 respondents (29.33%). Most respondents had used the system for less than one year. This profile makes learnability, workflow clarity, and independent use particularly important evaluation aspects.

Table 2. Descriptive statistics of the research constructs

Code	Construct	n	Mean	SD	Performance	Category
USQ	Usability Quality	75	3.964	0.442	74.10	High
INQ	Information Quality	75	3.944	0.440	73.61	High
SIQ	Service Interaction Quality	75	4.060	0.442	76.50	High
SAT	User Satisfaction	75	4.060	0.433	76.50	High

All constructs were rated in the high category. Service interaction quality and user satisfaction had the highest mean scores, whereas information quality had the lowest performance score. The pattern indicates an overall positive user assessment, while accuracy, relevance, and clarity of information still warrant attention.

The measurement model did not fully meet ideal PLS-SEM criteria. Several indicators had outer loadings below 0.708 or negative directions, and Cronbach's alpha, composite reliability, and AVE were below recommended levels for several constructs. These results indicate that the questionnaire and data structure require refinement before strong inferential claims can be made.

Table 3. Reliability and validity summary

Construct	Cronbach's alpha	rho_A	Composite reliability	AVE	Interpretation
INQ	0.606	−0.488	0.282	0.163	Below ideal
SAT	0.577	0.219	0.178	0.206	Below ideal
SIQ	0.613	−0.842	0.403	0.188	Below ideal
USQ	0.682	0.510	0.608	0.260	Below ideal

Despite the measurement limitations, the structural model provides directional evidence that is useful for prioritizing website improvements. The model explained 77.1% of the variance in user satisfaction, with an adjusted R^2 of 0.761. However, an SRMR of 0.177 and

an NFI of 0.102 indicate that overall model fit remained below commonly expected levels. Accordingly, the structural coefficients are reported as exploratory estimates rather than hypothesis-confirming results.

Table 4. Structural-model results

Relationship	Path coefficient	VIF	f^2	Effect size	Decision
USQ → SAT	0.516	2.122	0.549	Large	Positive direction; significance requires bootstrapping
INQ → SAT	0.191	1.385	0.116	Small	Positive direction; significance requires bootstrapping
SIQ → SAT	0.306	2.029	0.201	Medium	Positive direction; significance requires bootstrapping

Usability quality had the largest path coefficient, followed by service interaction quality and information quality. All VIF values were below 5, suggesting no serious multicollinearity among the predictor constructs. The f^2 values indicated a large contribution from usability quality, a medium contribution from service interaction quality, and a smaller contribution from information quality.

IPMA translated the structural estimates into practical improvement priorities. At the construct level, usability quality had the highest importance score (0.516) with a performance score of 74.10. Service interaction quality had an importance score of 0.306 and a performance score of 76.50, while information quality had an importance score of 0.191 and a performance score of 73.61.

Table 5. Construct-level IPMA

Code	Construct	Importance	Performance	Priority interpretation
USQ	Usability Quality	0.516	74.10	Primary improvement priority
INQ	Information Quality	0.191	73.61	Monitor and improve information accuracy
SIQ	Service Interaction Quality	0.306	76.50	Maintain and strengthen access stability

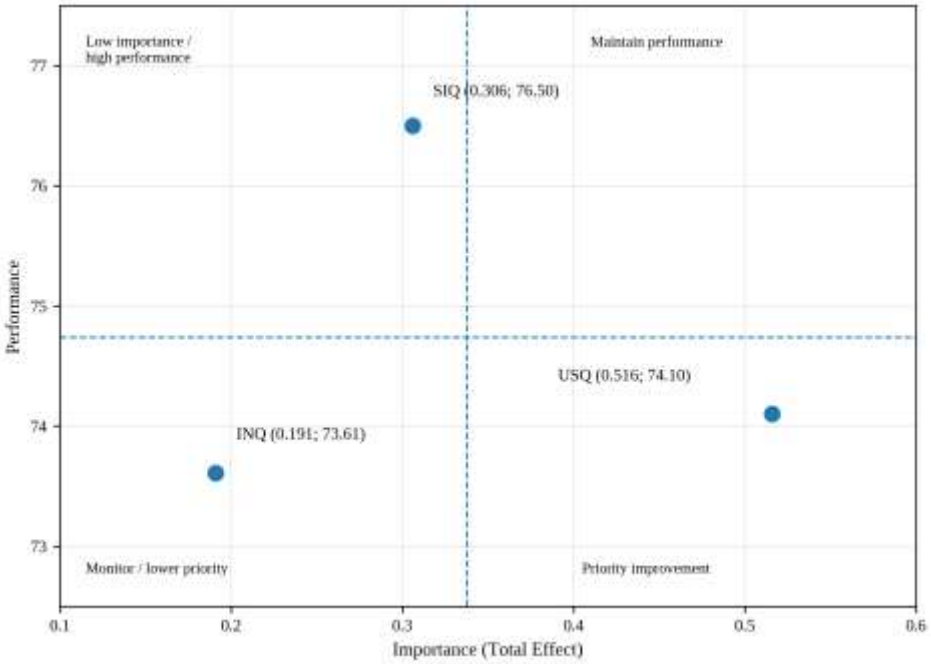


Figure 3. Construct-level importance–performance map

Figure 3 maps each construct by total importance and performance. Usability quality lies in the high-importance area with performance slightly below the construct average, confirming it as the principal improvement priority. Service interaction quality shows the strongest performance and should be maintained, while information quality combines lower importance with the lowest performance and therefore requires monitored, targeted improvement rather than resource-intensive intervention.

At the indicator level, the leading improvement priorities were USQ3, USQ1, SIQ1, INQ1, and INQ2. USQ3 concerns the clarity of the workflow for entering performance data, and USQ1 concerns the ease of learning the website. SIQ1 represents access stability, which is especially important because reporting and validation activities are commonly tied to administrative deadlines. INQ1 and INQ2 indicate that information accuracy and relevance should also be strengthened.

Table 6. Practical improvement recommendations

Priority aspect	Empirical basis	Recommended action
USQ3 – Workflow clarity	Priority usability indicator within the construct with the highest importance.	Simplify the input flow; add step-by-step guidance, field validation, and correct-entry examples.
USQ1 – Ease of learning	Usability quality has the largest structural contribution.	Provide a quick-start guide, frequently asked questions, video tutorials, and role-based onboarding.
SIQ1 – Access stability	Important service-interaction indicator with relatively lower performance.	Optimize server capacity, monitor downtime, and conduct load testing before reporting deadlines.
INQ1/INQ2 – Accuracy and relevance	Information quality has the lowest construct performance.	Validate data, synchronize employee records, improve summaries, and provide role-based filters.

Priority aspect	Empirical basis	Recommended action
Measurement model	Outer loadings, reliability, and AVE are below ideal levels.	Refine questionnaire items, recollect data, run bootstrapping, and evaluate predictive relevance using blindfolding or PLSpredict.

The findings show that users perceive the e-Kinerja website positively, but favorable descriptive scores do not by themselves establish a strong measurement model. This distinction is important: descriptive statistics summarize respondent tendencies, whereas measurement-model diagnostics determine whether the indicators consistently represent their intended latent constructs. Similar caution is recommended in PLS-SEM reporting, particularly when reliability and convergent validity remain below accepted thresholds (Hair et al., 2022; Hair et al., 2017).

Usability quality emerged as the most influential construct in the exploratory structural model. In the context of civil-servant performance reporting, usability determines whether users can complete submissions independently, understand the workflow, and avoid dependence on administrative intermediaries. This result is consistent with the continuous-improvement orientation emphasized by (Hidayat et al., 2026) and with evidence that performance efficiency and usability are important antecedents of satisfaction in local-government websites (Adyaputra et al., 2025). Nevertheless, the relative contribution of usability is context-dependent; (Alfareza et al., 2024), for example, found that information and service-interaction quality were statistically significant while usability was not. The comparison reinforces the need to evaluate each public-service platform in its operational context.

Service interaction quality also showed a positive structural direction. This dimension is particularly relevant to e-Kinerja because users rely on the website during periodic reporting and validation processes. Access stability, response speed, security, notification clarity, and technical support form part of the administrative reliability experienced by users. The priority assigned to access stability is consistent with recurring problems reported in other e-Kinerja evaluations, including peak-traffic slowdowns and login failures (Aripin & & Hardiansyah, 2024; Permana et al., 2023). It also corresponds with the broader finding that service quality and trust support acceptance of public digital services (Adi & Supriyanto, 2025; Prasetyo et al., 2024).

Information quality had the smallest path coefficient, but it should not be disregarded. Accurate, relevant, current, and complete information supports both reporting and managerial decision-making. Its comparatively low performance score indicates a need to strengthen data validation, synchronization, summaries, and role-based information presentation. Previous WebQual studies likewise show that information quality can materially influence user satisfaction in government and service websites (Husaeni & & Mardiana, 2022; Saifulloh & & Zulfa, 2023; Setiyani et al., 2023; Syam et al., 2024).

From a managerial perspective, the integrated use of PLS-SEM and IPMA helps distinguish between attributes that merely perform well and attributes that warrant investment because of their relative importance. This logic parallels the operational-priority approach used in integrated service-quality studies (Rokhayadi & & Supriyanto, 2026; (Romlih & & Budihartanti, 2023). From a methodological perspective, however, the current results must be

interpreted cautiously because the measurement model was not fully adequate and bootstrapping output was unavailable. Future analysis should revise or remove weak indicators on theoretical grounds, collect confirmatory data, run bootstrapping, and assess predictive performance before definitive hypotheses are accepted.

CONCLUSION

The e-Kinerja website at the Department of Industry, Transmigration, and Manpower of Tegal Regency received favorable user evaluations, with usability quality, information quality, service interaction quality, and user satisfaction all classified in the high category. The exploratory structural model explained 77.1% of the variance in user satisfaction ($R^2 = 0.771$), with usability quality exhibiting the largest positive path coefficient, followed by service interaction quality and information quality (Lee et al., 2020). The importance–performance map analysis (IPMA) identified workflow clarity and ease of learning as primary improvement priorities, followed by system accessibility and stability, information accuracy, and relevance. Recommended operational improvements included simplifying data entry procedures, providing role-specific onboarding and instructional tutorials, enhancing server capacity and system monitoring, improving notification clarity, validating and synchronizing employee records, and implementing role-based information filters. However, the measurement model did not fully satisfy the recommended reliability and convergent validity criteria, and bootstrapping results were unavailable to assess the statistical significance of the estimated relationships. Consequently, the findings were considered diagnostic and exploratory rather than confirmatory. Future research should refine indicators with weak or negative outer loadings, collect additional data for model validation, conduct bootstrapping to assess statistical significance, and evaluate out-of-sample predictive performance using PLSpredict or other appropriate predictive assessment procedures before drawing definitive inferential conclusions (Hyytinen et al., 2022).

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