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Improving E-Service Quality of Indonesian Toll Road Application with Entrepreneurship Insights

Mohamad Agus Setiawan[1*], Hartoyo Hartoyo[2], Kudang Boro Seminar[3], Bagus Sartono[4], Rachma Fitriati[5], Victor Ginting[6]
[1, 2, 3]School of Business, IPB University, Indonesia
[4]Department of Statistics, IPB University, Indonesia
[5]Faculty of Administrative Science, Universitas Indonesia, Indonesia
[6]Department of Mathematics and Statistics, University of Wyoming, United States
[1]agus.setiawan@jasamarga.co.id, [2]hartoyo@apps.ipb.ac.id, [3]kseminar@apps.ipb.ac.id, [4]bagusco@apps.ipb.ac.id,
[5]rachma.fitriati@ui.ac.id, [6]vginting@uwyo.edu
***Corresponding Author**

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ABSTRACT

Digital transformation in Indonesia toll road sector faces significant challenges related to information fragmentation among Toll Road Operators (BUJT), hindering the optimization of electronic service quality (E-Service Quality). This **research aims** to enhance E-Service Quality through the Soft Systems Methodology (SSM), integrated with Structural Equation Modeling-Partial Least Squares (SEM-PLS) analysis to understand key service dimensions. The **findings** indicate that integrating information across BUJTs, with a focus on informativeness, is critical to improving user satisfaction. The SSM-based conceptual model developed provides systemic solutions through policy integration, collaboration among BUJTs, and the development of an integrated information system. The assessment reveals that the proposed changes support toll road digital transformation and are culturally feasible. This study offers a strategic framework for improving toll road service quality, strengthening stakeholder collaboration, and creating a better user experience.

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1. INTRODUCTION

Toll roads in Indonesia play a crucial role in supporting public mobility and driving economic growth [1, 2]. With 2,834 kilometers of toll road network connecting Indonesia, it facilitates goods distribution and human transportation [3]. These toll roads are managed by multiple Toll Road Business Entities (BUJT), including state-owned enterprises and private operators [3]. However, despite advancements in physical infrastructure, the quality of Electronic Services (E-Service Quality) in toll road management remains a challenge. E-Service Quality has emerged as a significant research topic over recent decades, particularly in various industrial and public sectors [4–6]. Academics reveals that the application of E-Service Quality principles in Indonesian toll road services is underexplored and faces numerous challenges and require further discussion upon the topic [7, 8].

Digital transformation in the transportation sector has prompted efforts to increase E-Service Quality through innovations aimed at enhancing user comfort and experience [9]. One such innovation is the development of the ”Travoy” application by Jasa Marga, designed to provide real-time information on road conditions, toll tariffs, and available facilities, to make the users travel more convenient by serving relevant real time information [10].

Despite this progress, significant barriers remain to implementing E-Service Quality in Indonesia toll road services. The main problem is the fragmentation of information across BUJTs. Each BUJT independently manages its data, with the Travoy application only covering routes operated by the Jasa Marga Group [10]. Consequently, users undertaking long-distance travel must access multiple applications to obtain comprehensive information, particularly when traveling through areas managed by different BUJTs. This causes inconvenience for users and results in a mismatch between user expectations and the services provided. Thus, integrating information across BUJTs is essential for delivering comprehensive services and supporting digital transformation in the toll road sector.

Although numerous studies on e-service quality have been conducted across various sectors, a literature search in the Scopus database up to November 2024 did not identify any research specifically addressing the application of e-service quality in the toll road infrastructure sector. Furthermore, the use of Structural Equation Modeling (SEM) to examine efforts to enhance e-service quality in the context of toll road services has yet to be explored. Most studies in this sector remain focused on physical and operational service aspects, while the electronic service dimension, which is becoming increasingly relevant due to rapid digital transformation, has received relatively minimal attention. Therefore, this literature bridges this gap by investigating how e-service quality can be optimized through the application of SEM to improve the experience and satisfaction of toll road users.

Addressing such a complex issue requires a multi-methods approach that integrates quantitative approach using SEM and qualitative research framework through Soft Systems Methodology (SSM). SEM facilitates identification with empirical measurements of key dimensions affecting E-Service Quality empirically, while SSM helps to uncover deeper issues and formulate conceptual solutions that involve various stakeholders. SSM is a problem-solving framework developed to address situations that are difficult to define clearly [11–13]. This methodology emphasizes a deep understanding of the problem and the development of conceptual models that represent the desired system [14–16]. SSM has been widely applied to address complex and unstructured problems across various fields [17–19]. In the context of toll road services, the integration of these two approaches is expected to provide a more comprehensive understanding and more practical solutions for enhancing e-service quality in Indonesia’s toll roads [20].

This study aims to enhance toll road service quality by integrating information across BUJTs using the SSM framewor [21]k. By addressing the issue of fragmented information, this approach is expected to support digital transformation in the toll road sector and provide improved services for users [22].

2. MATERIAL AND METHODS

2.1. Research Design

This study employs a mixed-methods research design that integrates both quantitative and qualitative approaches within the SSM framework. This approach was selected to achieve a comprehensive understanding of the factors influencing E-Service Quality in toll road applications in Indonesia, as well as to identify and address the existing challenges [23]. SSM was chosen as the primary framework due to the effectiveness in addressing complex and unstructured problems involving multiple stakeholders [11–13]. The mixed-methods approach integrates quantitative data, obtained through Structural Equation Modeling-Partial Least Squares (SEM-PLS), and qualitative data collected through in-depth interviews. This integration allows for a deeper and more holistic problem understanding [24].

2.2. Soft Systems Methodology (SSM)

The problem-solving framework used in this study is an adapted version of the SSM, incorporating the Seven-Stage SSM Model adapted to a mixed-methods approach. The seven stages of SSM are, understanding the unstructured problem, holistically expressing the problem situation, developing a root cause definition, creating a conceptual model, comparing the conceptual model with real-world data, determining desired and feasible changes, and taking action to implement improvements [25]. Essentially, the SSM method begins with identifying the problem and determining actions to address it [11].

In this study, SEM-PLS analysis was integrated into Stage 2 to incorporate quantitative methods into the process of structuring the problem. This integration enables a more measurable and structured identification of factors influencing E-Service Quality. Figure 1 illustrating the Seven-Stage Mixed-Methods SSM Model. Figure 2 showed the SSM stages of digital transformation in toll road applications in Indonesia.

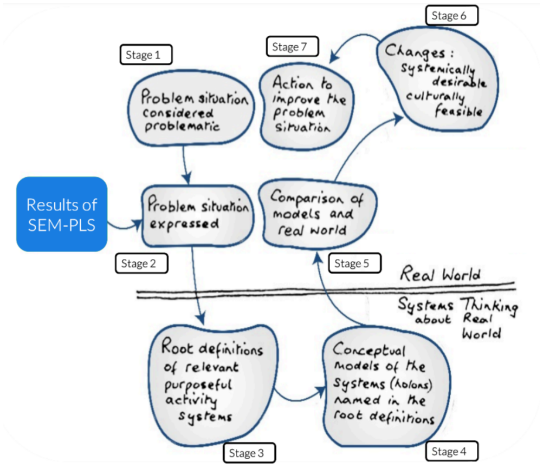

Figure 1. The Seven-Stage Mixed Methods SSM Model

Incorporating entrepreneurship insights into the digital transformation process can drive innovative solutions for improving e-service quality in Indonesian toll road applications. Entrepreneurs can leverage new business models, technology-driven services, and creative problem-solving strategies to address challenges related to user experience, system efficiency, and stakeholder collaboration [26]. By applying entrepreneurship thinking, the project not only aims to improve the technical aspects of toll road applications but also enhances the overall service design, making it more accessible, user-friendly, and responsive to evolving market demands. This approach emphasizes the importance of adapting to changing user expectations, fostering innovation, and integrating sustainable growth practices into the digital ecosystem of toll road services [27].

Furthermore, the integration of entrepreneurship insights into this digital transformation supports SDG 9: Industry, Innovation, and Infrastructure, as it promotes the development of resilient infrastructure, inclusive and sustainable industrialization, and fosters innovation [28]. By enhancing toll road services through innovative solutions, the project contributes to improved connectivity and efficiency, aligning with SDG 9's goal of building sustainable infrastructure and fostering innovation in the transportation sector. Through entrepreneurship insights, the digital transformation process becomes more aligned with both business and customer needs, ensuring continuous improvement, customer satisfaction, and contributing to broader sustainable development goals.

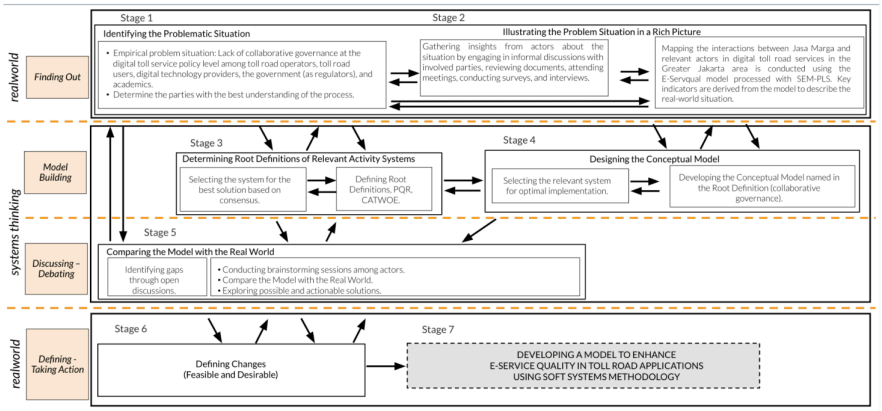

Figure 2. SSM Stages of Digital Transformation in Toll Road Service Application in Indonesia

Stage 1 involves the understanding of unstructured problems through an initial exploration of the complex situation related to E-Service Quality in toll road applications. This process includes a literature review and discussions with stakeholders such as toll road users, application developers, BUJTs, and government representatives. The aim is to identify key issues, understand the operational context from multiple perspectives.

Stage 2 expresses the problem holistically by integrating quantitative and qualitative methods. Quantitative data was gathered via a survey using a questionnaire designed based on E-Service Quality dimensions [29–31]. The survey was distributed online to 9,500 toll road application users between May 1 and May 18, 2024, yielding 1,720 responses. After data validation, 476 responses were deemed usable for analysis. SEM-PLS analysis was performed to identify and quantify the influence of various dimensions on E-Service Quality. Additionally, qualitative data was collected through in-depth interviews with 15 informants, including toll road users, application developers, BUJTs, and government representatives, to gather insights into their perceptions and experiences with E-Service Quality [32].

Stage 3 involves developing root definitions of the problem using CATWOE analysis (Customers, Actors, Transformation process, Worldview, Owners, Environmental constraints). This stage helps clarify the problem from multiple stakeholder perspectives and defines the desired system for transformation. Stage 4 focuses on creating conceptual models that outline the processes and activities required to achieve the desired transformation. These models are informed by the root definitions and previous analyses, identifying key activities, interrelations, and control mechanisms and evaluation necessary for implementation [33].

Stage 5 compares the conceptual models with real-world data to identify gaps between the ideal system and current realities. This comparison involves validating the models through stakeholder discussions and feedback to refine and adapt the models for practical application [34].

Stage 6 determines desirable and feasible changes to be implemented. Based on the analysis of gaps and stakeholder feedback, appropriate improvements are identified that align with user needs and operational conditions. Stage 7 formulates an action plan to implement the identified changes [35].

By adopting this Seven-Stage Mixed-Methods SSM Model, the study effectively integrates quantitative and qualitative approaches to understand and address the challenges of E-Service Quality in Indonesia toll road applications [36, 37]. This approach enables empirical identification of key factors influencing service quality while accommodating stakeholder perspectives and needs. The resulting solutions are thus comprehensive and have the potential to significantly enhance service quality and user satisfaction [38].

2.3. Study Limitations

This study acknowledges several limitations. While the quantitative analysis identifies three dimensions App Design (AD), Informativeness (IF), and Customization (CU) as significant factors influencing E-Service Quality, the solutions developed through SSM focus primarily on the informativeness dimension. This focus was selected due to resource and scope constraints, enabling deeper exploration and targeted solutions within a single dimension. Future research should address the remaining dimensions to provide a more comprehensive improvement of E-Service Quality [39, 40].

3. RESULTS

3.1. Understanding the Unstructured Problem

The first stage involved identifying the unstructured problem associated with E-Service Quality in toll road applications [41]. Through a literature review and discussions with stakeholders, including toll road users, application developers, BUJTs, and government representatives, the primary issue of fragmented information among BUJTs was identified. Each BUJT independently manages its information without adequate integration, forcing users to rely on multiple applications for complete information. This lack of integration disrupts user experience and hinders the provision of comprehensive and seamless electronic services.

3.2. Holistic Problem Formulation (Rich Picture Diagram)

In the second stage, the problem was formulated holistically by employing Rich Picture Diagrams and conducting quantitative analysis using SEM-PLS.

3.2.1. Rich Picture Diagram

The problem of fragmented information among BUJTs is visualized using a Rich Picture Diagram, which provides a comprehensive overview of the situation. This visualization includes stakeholder interactions,

information flows, and impacts on the Quality of Electronic Services in the toll road application. The Rich Picture captures the complexity of the current system and highlights key areas that require improvement.

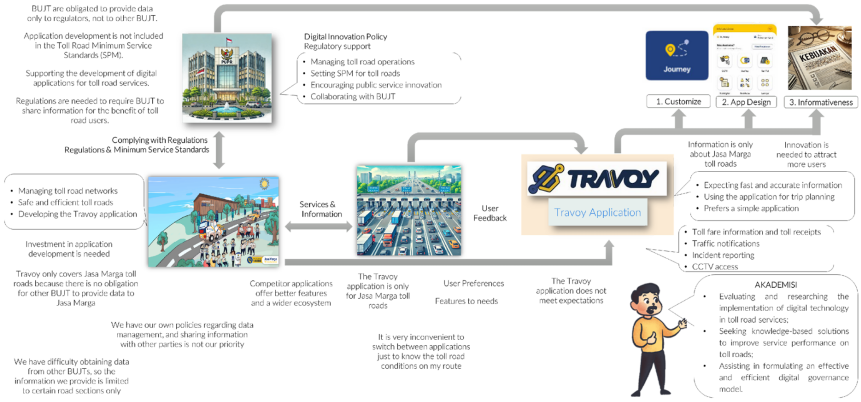

Figure 3. Rich Picture Illustration of Fragmented Information Among BUJTs in Toll Road Applications

Figure 3 illustrates the fragmented information flow among Business Unit Job Titles (BUJTs) in toll road applications. The Rich Picture Diagram provides a visual representation of the various stakeholder interactions, information flows, and how these elements impact the quality of electronic services. By mapping out the current system, the diagram reveals the complexities that hinder effective communication and collaboration, particularly the lack of integration between different departments and external stakeholders. From an entrepreneurship perspective, this visualization emphasizes the importance of fostering innovation, creating more efficient information-sharing mechanisms, and building collaborative platforms that enhance the agility and responsiveness of the toll road system. Identifying key areas for improvement such as optimizing workflows and integrating technology-driven solutions aligns with entrepreneurship approaches that focus on sustainable growth, resource optimization, and customer-centric service designs. This diagram is crucial for understanding the operational challenges and guiding entrepreneurship initiatives aimed at enhancing service quality and user satisfaction in the toll road sector.

3.2.2. Quantitative Analysis with SEM-PLS

Quantitative analysis was conducted using SEM-PLS to identify and measure the influence of the dimensions of Electronic Service Quality on the overall quality of electronic services in toll road applications. A structural model was developed to describe the relationship between latent variables and their indicators as shown in Figure 4.

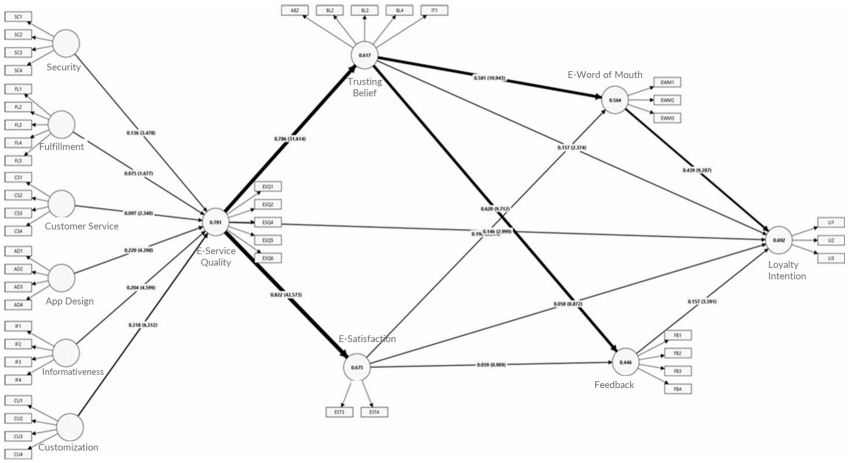

Figure 4. SEM-PLS Structural Model for E-Service Quality in Toll Road Applications

After the structural model was validated, the significance of each relationship was tested. The results, summarized in Table 1, indicate that the dimensions of Customization, App Design, and Informativeness significantly influence E-Service Quality. While Customization demonstrated the strongest influence, this study focused on the dimension of Informativeness due to its critical limitation.

Table 1. SEM-PLS Structural Model Testing Results

Hypothesis	Variable Effect	Path Coefficient	T-Statistic	Conclusion
H1a	*Security (SC)* → E-Service Quality (ESQ)	0.136	3.478	Significant
H1b	Fulfillment (FL) → E-Service Quality (ESQ)	0.075	1.677	Significant
H1c	Customer Service (CS) → E-Service Quality (ESQ)	0.097	2.340	Significant
H1d	App Design (AD) → E-Service Quality (ESQ)	0.220	4.398	Significant
H1e	Informativeness (IF) → E-Service Quality (ESQ)	0.204	4.599	Significant
H1f	Customization (CU) → E-Service Quality (ESQ)	0.318	6.312	Significant
H2	E-Service Quality (ESQ) → E-Satisfaction (EST)	0.822	42.573	Significant
H3	E-Service Quality (ESQ) → Trusting Belief (TB)	0.786	31.614	Significant
H4	Trusting Belief (TB) → E-Word of Mouth (EWM)	0.581	10.943	Significant
H5	Trusting Belief (TB) → Loyalty Intention (LI)	0.157	2.374	Significant
H6	Trusting Belief (TB) → Feedback (FB)	0.620	9.712	Significant
H7	E-Satisfaction (EST) → E-Word of Mouth (EWM)	0.198	3.514	Significant
H8	E-Satisfaction (EST) → Loyalty Intention (LI)	0.050	0.872	Not Significant
H9	E-Satisfaction (EST) → Feedback (FB)	0.059	0.909	Not Significant
H10	E-Word of Mouth (EWM) → Loyalty Intention (LI)	0.439	9.287	Significant
H11	Feedback (FB) → Loyalty Intention (LI)	0.157	3.591	Significant
H12	E-Service Quality (ESQ) → Loyalty Intention (LI)	0.146	2.999	Significant

3.3. Developing Root Definitions of the Problem (Root Definition)

In the third stage, root definitions of the problem were developed using CATWOE analysis, which examines the problem from various stakeholder perspectives. This approach provided a deeper understanding of the problem context and helped formulate a system for achieving the desired transformation. By exploring different perspectives, CATWOE identified key issues related to fragmented information among BUJTs in the toll road application system. The results of the analysis are summarized in Table 2, highlighting areas for improvement in stakeholder collaboration and service delivery.

Table 2. CATWOE Analysis Results for Fragmented Information Among BUJTs

CATWOE	Informativeness in the Application
Customer	
(The user or beneficiaries of toll road system and its transformation)	• Toll road user • Jasa Marga/BUJT • Toll Road Association • Application Developer Company • Ministry of Public Works and Public Housing • Ministry of Transportation • Traffic Corps POLRI

CATWOE	Informativeness in the Application
Actor (People executing the transformation)	• Jasa Marga/BUJT • Toll Road Association • Application Developer Company
Transformation (conversion from input to output)	From **NOT YET** to **APPLIED** Amendment PP Number. 23 of 2024 concerning the Integration of Toll Road Service Information
Worldview (perspective and point of view that made transformation valuable)	Formal law in formulating policies on the integration of various traffic service information on toll roads
Owner (person or group responsible and able to stop the transformation)	• Jasa Marga/BUJT • Ministry of Public Works and Public Housing • Application Developer Company
Environment (surroundings that excluded from the applied transformation)	Parties who do not want changes to occur to the Informativeness aspect of the Travoy Application

Table 2 presents the results of the CATWOE analysis, which examines fragmented information from multiple stakeholders in the toll road application system. This analysis, based on various perspectives such as customers, actors, transformations, and the environment, provides a clearer understanding of the system challenges and potential improvements. By considering these perspectives, the CATWOE analysis uncovers critical areas for intervention, helping to prioritize actions that will lead to a more cohesive system. From an entrepreneurship perspective, this analysis highlights opportunities for innovation in how stakeholders interact, share information, and collaborate within the toll road industry. Entrepreneurshop can leverage this understanding to develop new solutions that address gaps in the system, such as creating more efficient digital platforms, fostering partnerships for data sharing, and designing services that respond to the evolving needs of customers and stakeholders. By incorporating entrepreneurship principles such as agility, market adaptability, and sustainable growth, these insights can be translated into actionable strategies that not only improve operational efficiency but also enhance the customer experience, creating a competitive advantage in the market.

3.4. Conceptual Model Development

Based on the root definitions and CATWOE analysis, a conceptual model was developed to address the issue of fragmented information among BUJTs. This model emphasizes a systemic transformation, focusing on the transition from the absence of regulatory amendments under Government Regulation No. 23 of 2024 to the establishment of such amendments, ensuring information integration. The conceptual model outlines strategic and operational steps needed to achieve information integration, enhance the informativeness dimension, and improve E-Service Quality. Figure 5 presents a conceptual model of information integration between BUJTs through the amendment process of PP No. 23 of 2024.

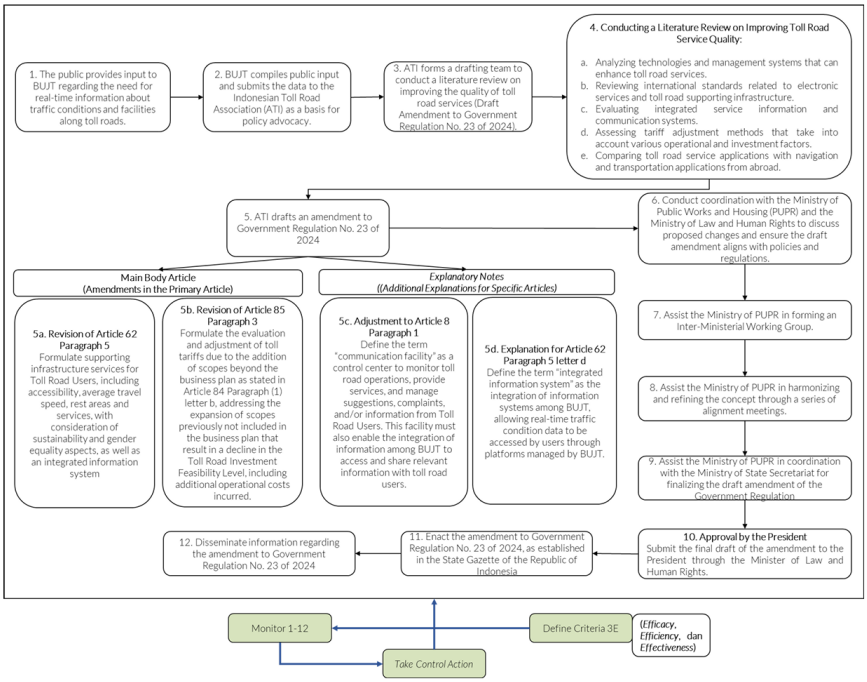

Figure 5. Conceptual Model for Informativeness Variable

3.5. Comparison of Conceptual Model with Real-World Data

The developed conceptual model was compared with real-world data to identify gaps between the ideal system and operational reality. This validation involved discussions with stakeholders and field observations. The objective from this stage was to validate conceptual model, assess the feasibility of implementation, and understand the obstacles and opportunities that present. The comparison results are summarized in Table 3.

Table 3. Comparison Between Conceptual Model and Real-World Observations

No.	Conformities	Differences
1	Toll road users and BUJT agreed that information integration between each BUJTs are needed to improve Informativeness and E-Service Quality.	Not every BUJT has proper technology infrastructure to support real-time information integration.
2	The Ministry of Public Works and Public Housing showed commitment to support initiatives that lead to improvement of toll road service quality through updating their regulations.	Few BUJTs have internal regulations that limit external data sharing, including to other BUJTs.
3	ATI ready to facilitate coordination between BUJTs and will play an active role in the advocacy process.	Amendment PP Number 23 Year 2024 process needs a long time and will involve various stakeholders.
4	-	Concerns about data security and confidentiality are barriers for BUJT to share information.

3.6. Determining Desired Changes

The proposed changes were evaluated to ensure they were both systematically desirable and culturally feasible. The evaluation considered stakeholder feedback and operational conditions to formulate actionable recommendations. Table 4 summarizes the proposed changes and their recommendations.

Table 4. Analysis of Desired Changes and Implementation Recommendations.

No.	Aspect	Systematically Desirable	Culturally Feasible	Recommendation
1	Amendment PP Number. 23 Year 2024 about Toll Road	Yes, amendment needed to ensure integration of toll road services information will improve the Informativeness and E-Service Quality for the users.	Yes, regulation changes are in line with users' needs and direction of government policies in digital transformation.	• Submitting the amendment PP number 23 Year 2024 proposal. • Conducting advocation and coordination with the Ministry of Public Works and Public Housing, Ministry of Law and Human Rights.

Table 4 presents the results of the analysis, highlighting the need for the amendment of PP Number 23 Year 2024 to improve toll road service integration. From an entrepreneurship perspective, this change offers opportunities to innovate in digital services and data-sharing, aligning with government policies and fostering industry growth.

3.7. Taking Corrective Actions

In the final stage, concrete steps are taken to implement changes that have been identified as systematically desirable and culturally feasible. These corrective actions aim to address the problem of information fragmentation between BUJTs and improve Informativeness as an important dimension in E-Service Quality in toll road service applications. Table 5 presents the corrective action plan that needs to be taken.

Table 5. Corrective Action Plan

No.	Aspect	Corrective Actions
1	Amendment PP Number. 23 Year 2024 about Toll Road	• Create and submit amendment of PP Number. 23 Year 2024 draft to the relevant stakeholders. • Conduct advocacy and intensive coordination with the Ministry of PUPR and the Ministry of Law and Human Rights. • Form an inter-ministerial working team to harmonize and strengthen the amendment concept. • Hold a series of meetings to align the draft amendment and ensure that all aspects of the changes are properly accommodated.
2	Information integration between BUJTs	• Drafting and signing cooperation agreements related to data exchange between BUJTs. • Developing data integration standards and protocols to ensure consistency and quality of information. • Implementing data security technologies such as encryption to protect information shared between BUJTs.

No.	Aspect	Corrective Actions
3	Integrated Information System Development	• Investing in information technology infrastructure that supports real-time data integration. • Organizing training for BUJT human resources and application developers for the use and management of integrated information systems. • Conducting periodic monitoring and evaluation of the performance of integrated information systems to ensure effectiveness and make continuous improvements.

Table 5 outlines corrective actions to improve information integration and e-service quality in toll road applications. From an entrepreneurship perspective, these actions present opportunities to innovate, such as developing platforms for data sharing and investing in IT infrastructure. Entrepreneurs can create solutions that enhance system efficiency, user experience, and collaboration among stakeholders, offering a competitive edge in the market.

4. DISCUSSION

This study reveals that the integration of information across Toll Road Business Entities (BUJTs) is a critical step in optimizing E-Service Quality for toll road applications in Indonesia. By employing the Soft Systems Methodology (SSM) framework in conjunction with SEM-PLS analysis, the study identifies and focuses on the informativeness dimension as a key factor in improving user perceptions of service quality.

A primary finding is the significant issue of fragmented information managed independently by each BUJT. This disjointed management compels users to utilize multiple applications to gather complete information, particularly during long-distance travel across toll roads managed by different BUJTs. This fragmentation limits the effectiveness of applications such as Travoy, which, due to its restricted coverage, fails to meet user expectations for seamless service. These findings align with prior studies [29], which emphasize that inadequate information integration negatively impacts user perceptions of electronic service quality.

The SEM-PLS analysis highlights informativeness as a critical dimension influencing E-Service Quality. This dimension pertains to the ability of an application to deliver accurate, relevant, and timely information. Although customization and app design also exhibit significant impacts, the emphasis on informativeness in this study provides a strong foundation for addressing the challenges of fragmented information. This focus is consistent with earlier research, which underscores the importance of real-time and reliable information in enhancing user experiences [30, 31].

The application of SSM offers a systemic approach to addressing the complexities of fragmented information. The CATWOE analysis and conceptual model developed in this study highlight the need for regulatory amendments, enhanced technological infrastructure, and inter-institutional coordination. Validation of the conceptual model with field facts revealed major gaps, such as technological limitations in some BUJTs and concerns regarding data security.

5. MANAGERIAL IMPLICATIONS

This research contributes to the literature by demonstrating the application of SSM in addressing complex, unstructured problems within the context of digital public services. The integration of SEM-PLS into the SSM framework provides a quantifiable basis for understanding factors affecting E-Service Quality. This approach extends the applicability of SSM to the study of service quality in digital transformation initiatives.

For stakeholders such as BUJTs, government agencies, and application developers, the findings offer actionable insights into improving E-Service Quality. The study underscores the urgency of regulatory amendments, particularly to Government Regulation No. 23 of 2024, to facilitate data integration. Additionally,

investments in technological infrastructure and capacity-building initiatives for BUJT personnel are essential for implementing a unified information system. These recommendations align with the Indonesian government's broader goals of digital transformation in the transportation sector.

6. CONCLUSION

This study underscores that integrating information across Toll Road Business Entities (BUJTs) is essential for optimizing E-Service Quality in toll road applications in Indonesia. By employing the Soft Systems Methodology (SSM) combined with SEM-PLS analysis, the research identifies informativeness as the primary dimension influencing users' perceptions of service quality.

The conceptual model developed offers systemic solutions through regulatory amendments, the establishment of integrated information systems, and enhanced collaboration among BUJTs. These solutions address the core issue of fragmented information, providing a pathway to improving user experiences and achieving a seamless digital transformation in the toll road sector. Validation of the proposed model confirms that the recommended changes are not only technically feasible but also culturally appropriate within the operational context of Indonesia toll road system.

This study contributes to both theory and practice. The integration of quantitative analysis within the SSM framework enriches its applicability to complex, unstructured problems, particularly in digital public services. Practically, the findings provide a strategic framework for stakeholders government agencies, BUJTs, and application developers to enhance service quality through effective policy making, technological investments, and capacity building.

The successful implementation of the proposed changes requires a commitment from all stakeholders. Prioritizing the amendment of Government Regulation No. 23 of 2024, fostering inter-institutional coordination, and developing secure and user-friendly integrated systems are critical to achieving the desired outcomes. These steps are expected to enhance E-Service Quality, strengthen stakeholder synergies, and create a better experience for toll road users.

7. DECLARATIONS

7.1. About Authors

Mohamad Agus Setiawan (MA) https://orcid.org/0009-0003-6697-4879

Hartoyo Hartoyo (HH) https://orcid.org/0000-0003-1245-7342

Kudang Boro Seminar (KB) https://orcid.org/0000-0001-8640-1646

Bagus Sartono (BS) https://orcid.org/0000-0003-1115-4737

Rachma Fitriati (RF) https://orcid.org/0000-0002-5095-1256

Victor Ginting (VG) https://orcid.org/0000-0002-8191-5944

7.2. Author Contributions

Conceptualization: MA; Methodology: HH; Software: KB; Validation: BS and RF; Formal Analysis: VG and MA; Investigation: HH and KB; Resources: BS; Data Curation: RF; Writing Original Draft Preparation: VG and KB; Writing Review and Editing: MA and HH; Visualization: LK; All authors, MA, HH, BS, RF, and VG, have read and agreed to the published version of the manuscript.

7.3. Data Availability Statement

The data presented in this study are available on request from the corresponding author.

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7.5. Declaration of Conflicting Interest

The authors declare that they have no conflicts of interest, known competing financial interests, or personal relationships that could have influenced the work reported in this paper.

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