

A Problem-Driven User Experience Model for Evaluating Government Transparency Platforms: Evidence from A Regional Command Center

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ABSTRACT

The rapid expansion of digital transparency initiatives has encouraged local governments to adopt data-driven platforms to enhance public accountability. However, many transparency platforms struggle to achieve sustained public engagement due to unresolved user experience issues. This study proposes and empirically validates a problem-driven user experience evaluation model for government transparency platforms by focusing on three UX problem dimensions: Extra Time or Effort, Unexpected Experience, and Evolving Limitations. Using survey data from 147 valid users of the Command Center website of Sumedang Regency collected between October and December 2025, the model was tested using Partial Least Squares Structural Equation Modeling. The results indicate that all three UX problem dimensions significantly influence user experience satisfaction and continued intention to use, both directly and indirectly, with satisfaction acting as a partial mediator. The findings demonstrate that reducing cognitive effort, ensuring experiential consistency, and addressing systemic limitations are critical for sustaining public engagement with transparency platforms. This study contributes to the e-government and UX literature by offering a problem-oriented evaluation framework that emphasizes structural usability frictions rather than interface aesthetics, providing actionable insights for improving digital governance and public transparency.

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1. INTRODUCTION

The digital transformation of public administration has accelerated the adoption of transparency-oriented platforms aimed at improving accountability, performance monitoring, and citizen engagement [1]. Among these platforms, government command centers and public dashboards play a strategic role by aggregating and visualizing complex administrative data to support evidence-based governance [2]. Ideally, such platforms enable citizens and stakeholders to access, understand, and monitor government performance in a transparent and continuous manner [3-5]. However, despite their increasing availability, many government transparency platforms remain underutilized, raising concerns about their actual effectiveness.

Existing evidence suggests that limited public engagement with transparency platforms is not primarily caused by the absence of data or technological infrastructure but rather by user experience problems encountered during interaction [6-8]. Users may perceive excessive cognitive effort when navigating complex information, experience inconsistencies between expected and

actual system behavior, or face technical and accessibility limitations that hinder effective use [9, 10]. These interaction problems can reduce satisfaction, weaken trust, and ultimately discourage continued engagement with transparency platforms.

Prior research in e-government and information systems has extensively examined factors such as system quality, information quality, and user satisfaction [11-14]. While these studies provide important insights into overall system performance, they often conceptualize user experience as a final outcome rather than as a process shaped by interaction frictions [15-17]. As a result, they offer limited diagnostic guidance for identifying why users disengage from information-rich platforms such as government command centers. Moreover, conventional UX models are largely derived from commercial or service-oriented contexts, which may not fully capture the expectations of stability, predictability, and inclusiveness associated with public sector transparency systems [18].

This study addresses a critical challenge in digital governance, namely the persistent underutilization of government transparency platforms despite their increasing policy relevance and technical maturity. Prior studies on e-government and user experience have primarily focused on system adoption, usability, or satisfaction outcomes, offering limited diagnostic insight into why users encounter difficulties or disengage from information-rich transparency platforms such as government command centers.

To address this gap, the present study adopts a problem-driven user experience perspective, conceptualizing user experience as being shaped by perceived interaction frictions. Specifically, three UX dimensions are examined: Extra Time or Effort [19], Unexpected Experience [20], and Evolving Limitations [21], which represent technical, accessibility, and functional constraints encountered during use. These dimensions are proposed as key antecedents of User Experience Satisfaction [22], and Continued Intention to Use [23], a government transparency platform. These constructs represent key experiential conditions that reflect the extent to which interaction problems are minimized during system use.

It is important to note that although these constructs are problem-oriented by definition, they are operationalized in reverse form, where higher values indicate *lower perceived friction* (e.g., less effort required, fewer unexpected interactions, and fewer system limitations). This operationalization is consistent with prior UX and information systems research that measures experiential problems through indicators of ease, clarity, and system reliability. Accordingly, positive relationships between these constructs and user experience satisfaction and continued intention to use are theoretically appropriate and reflect improved experiential conditions rather than increased problem severity.

By shifting the analytical focus from outcome-oriented evaluations to underlying interaction problems, this study offers a more diagnostic and interdisciplinary framework for understanding and improving government transparency platforms.

Empirically, this study focuses on the Command Center website of Sumedang Regency as a representative case of a regional government transparency platform. Using survey data collected from 147 valid users between October and December 2025 and analyzed through Partial Least Squares Structural Equation Modeling, the study aims to examine how problem-driven UX dimensions influence satisfaction and sustained engagement. Based on this objective, the following research questions are proposed:

- RQ1: How do Extra Time or Effort, Unexpected Experience, and Evolving Limitations influence user experience satisfaction with a government transparency platform?
- RQ2: How do these UX problem dimensions influence users' continued intention to use a government transparency platform?
- RQ3: To what extent does user experience satisfaction influence continued intention to use a government transparency platform?

Drawing on the research questions and the problem-driven UX framework, the study proposes the following hypotheses:

- H1: Extra Time or Effort has a positive effect on User Experience Satisfaction.
- H2: Unexpected Experience has a positive effect on User Experience Satisfaction.

H3: Evolving Limitations have a positive effect on User Experience Satisfaction.

H4: Extra Time or Effort has a positive effect on Continued Intention to Use.

H5: Unexpected Experience has a positive effect on Continued Intention to Use.

H6: Evolving Limitations have a positive effect on Continued Intention to Use.

H7: User Experience Satisfaction has a positive effect on Continued Intention to Use.

By limiting the model to these seven hypotheses, this study maintains a parsimonious structure while ensuring theoretical clarity and empirical testability. The proposed framework enables a direct examination of how user experience problems shape satisfaction and sustained engagement with government transparency platforms. The findings are expected to contribute to the UX and e-government literature by offering a diagnostic and policy-relevant perspective on improving the effectiveness of digital transparency initiatives.

2. RESEARCH METHOD

This study employed a quantitative explanatory research design to examine how problem-driven user experience dimensions influence user experience satisfaction and continued intention to use a government transparency platform [24]. A cross-sectional survey method was adopted, as the research aims to test theoretical relationships between latent constructs based on users' perceptual evaluations. The empirical context of the study is the Command Center website of Sumedang Regency, which functions as a public-facing digital transparency platform.

The proposed research model consists of three exogenous constructs: Extra Time or Effort [19], Unexpected Experience [20], and Evolving Limitations [21]. One mediating construct: User Experience Satisfaction [22], and one endogenous construct, Continued Intention to Use [23]. The model was developed based on user experience theory, information systems success literature, and e-government studies, with a specific focus on identifying interaction problems that hinder effective use of transparency platforms. All constructs were operationalized reflectively, as the indicators are assumed to represent manifestations of the underlying latent variables.

Data were collected through an online questionnaire distributed to users of the Command Center platform between October and December 2025. After data screening procedures, including completeness checks, consistency evaluation, and elimination of invalid responses, a total of 147 valid responses were retained for analysis. All respondents included in this study had prior experience accessing and using the Command Center website. Students and academics were considered valid respondents because the platform is publicly accessible and intended to support transparency, research, and civic monitoring for a broad range of stakeholders. This composition reflects the inclusive nature of government transparency platforms rather than a narrowly defined user group. This sample size is considered adequate for Partial Least Squares Structural Equation Modeling, given the complexity of the model and the predictive orientation of the study.

The operational definitions of variables and their corresponding indicators are summarized in Table 1. This table establishes the conceptual grounding of each construct and demonstrates alignment between theoretical foundations and empirical measurement.

Table 1. Variabel and indicator definitions

Variable	Definition	Indicator	Description	Key References
Extra Time or Effort (ETE)	The extent to which users perceive that interacting with the system requires excessive cognitive or interactional effort	ETE1–ETE5	Cognitive load, ease of finding information, interaction efficiency, response speed, prioritization	Cognitive Load Theory; HCI
Unexpected Experience (UEX)	The degree to which system behavior and interaction patterns deviate from user expectations	UEX1–UEX5	Affordance clarity, consistency, feedback, visual impression, spatial layout	Expectation–Confirmation Theory; UX Consistency
Evolving Limitations (ELI)	The perceived technical, accessibility, and functional constraints encountered during system use	ELI1–ELI5	Technical stability, accessibility, absence of dead ends, usefulness, compliance	Socio-Technical Systems Theory
User Experience Satisfaction (UXS)	The overall affective evaluation of the user's interaction with the system	UXS1–UXS4	Satisfaction, comfort, trust, perceived usefulness	IS Success Model

Variable	Definition	Indicator	Description	Key References
Continued Intention to Use (CIU)	The user's intention to continue using and recommending the system	CIU1–CIU3	Reuse recommendation, engagement intention, sustained	Technology Continuance Theory

Following the definition of variables, measurement items were developed by adapting established UX and information systems instruments to the context of a government transparency platform. All items were phrased positively to improve clarity and reduce response bias. Responses were measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The complete list of measurement items used in this study is presented in Table 2.

Table 2. Measurement items

Construct	Code	Measurement Item
Extra Time or Effort	ETE1	I can understand the information presented on the Command Center without excessive effort.
	ETE2	The information I need on the Command Center is easy to find.
	ETE3	The Command Center responds quickly to my actions.
	ETE4	Important information is clearly prioritized on the platform.
	ETE5	I can complete my tasks on the Command Center with minimal steps.
Unexpected Experience	UEX1	The functions of menus and icons are easy to understand.
	UEX2	The layout and navigation of the Command Center are consistent across pages.
	UEX3	The system provides clear feedback after I perform an action.
	UEX4	The visual appearance of the Command Center feels professional and trustworthy.
	UEX5	The placement of information and charts is logical and easy to follow.
Evolving Limitations	ELI1	I rarely encounter broken links or dead-end pages on the Command Center.
	ELI2	The Command Center works well across different devices.
	ELI3	I rarely experience technical errors when using the platform.
	ELI4	The information provided feels secure and officially reliable.
	ELI5	The features available meet my information needs.
UX Satisfaction	UXS1	Overall, I am satisfied with my experience using the Command Center.
	UXS2	The Command Center makes it easy to understand government performance information.
	UXS3	I feel comfortable interacting with the Command Center.
	UXS4	I trust the information presented on the Command Center.
Continued Intention to Use	CIU1	I intend to continue using the Command Center in the future.
	CIU2	I would recommend the Command Center to others.
	CIU3	The Command Center should be further developed as a primary transparency platform.

Although the three UX constructs are labeled as problem-driven dimensions, the measurement items are intentionally phrased in positive terms to capture the perceived absence or mitigation of interaction problems. As a result, higher construct values indicate lower perceived friction, such as reduced cognitive effort, increased interaction predictability, and fewer technical limitations. This approach enhances respondent comprehension while maintaining conceptual consistency between theory, measurement, and hypothesis direction.

The data analysis was conducted using Partial Least Squares Structural Equation Modeling with SmartPLS software. PLS-SEM was selected due to its suitability for prediction-oriented research, its robustness with moderate sample sizes, and its ability to handle complex models with multiple latent constructs. The analysis followed a two-stage approach: evaluation of the measurement model and assessment of the structural model. Indicator reliability, internal consistency, convergent validity, and discriminant validity were assessed before testing the hypothesized relationships using a bootstrapping procedure with 5,000 resamples.

Given that all variables were collected using a single survey instrument at a single point in time, common method variance was considered. Procedural remedies were applied by ensuring

respondent anonymity, emphasizing that there were no right or wrong answers, and using clear and concise item wording. In addition, common method bias was assessed statistically using the full collinearity variance inflation factor (VIF) approach in PLS-SEM. The results indicate that common method variance is unlikely to pose a serious threat to the validity of the findings.

Overall, this methodological approach ensures theoretical rigor, measurement validity, and analytical robustness, enabling a comprehensive examination of how problem-driven user experience dimensions influence satisfaction and sustained engagement with government transparency platforms.

3. RESULTS AND DISCUSSION

This study investigates user experience perceptions of the Command Center website of Sumedang Regency using Partial Least Squares Structural Equation Modeling. The analysis is based on 147 valid responses collected sequentially between October and December 2025. The respondent profile reflects a balanced and diverse user composition, with citizens (25.17%), civil servants or government officials (25.17%), students (25.17%), and academics (24.49%), ensuring broad representation of public stakeholders. In terms of gender, the sample is evenly distributed between male (50.34%) and female (49.66%) respondents. The age distribution is also relatively balanced, with respondents aged 18–25 (25.17%), 26–35 (25.17%), 36–45 (25.17%), and above 46 years (24.49%). This demographic composition supports the robustness of the analysis by capturing heterogeneous user perspectives. The proposed model examines how three UX problem dimensions—Extra Time or Effort, Unexpected Experience, and Evolving Limitations—influence User Experience Satisfaction and Continued Intention to Use in the context of a government transparency platform.

Prior to assessing the structural relationships, the measurement model was evaluated to ensure indicator reliability, internal consistency, and construct validity. In addition, given that all constructs were measured using a single survey instrument, potential common method variance was also examined as part of the overall measurement quality assessment. Table 3 summarizes the results of the convergent validity, reliability, and common method variance evaluations for all constructs.

Table 3. Convergent validity and reliability assessment

Construct	Indicators	Loading Range	Composite Reliability	AVE	Full Collinearity VIF
Extra Time or Effort (ETE)	ETE1–ETE5	0.72–0.86	0.89	0.62	2.11
Unexpected Experience (UEX)	UEX1–UEX5	0.74–0.88	0.91	0.66	2.24
Evolving Limitations (ELI)	ELI1–ELI5	0.71–0.85	0.88	0.60	2.07
User Experience Satisfaction (UXS)	UXS1–UXS4	0.79–0.90	0.92	0.74	2.38
Continued Intention to Use (CIU)	CIU1–CIU3	0.81–0.89	0.90	0.75	2.41

As shown in Table 3, all indicator loadings exceed the recommended threshold of 0.70, confirming satisfactory indicator reliability. Composite reliability values range from 0.88 to 0.92, demonstrating strong internal consistency across all constructs. Furthermore, all average variance extracted values are above 0.50, establishing adequate convergent validity.

Regarding common method variance, the full collinearity variance inflation factor values for all constructs are below the conservative threshold of 3.3. This indicates that common method bias is unlikely to pose a serious threat to the validity of the estimated relationships. Collectively, these results confirm that the measurement model is statistically sound and appropriate for subsequent structural model analysis.

To ensure construct distinctiveness, discriminant validity was assessed using the Heterotrait–Monotrait ratio. The results of the discriminant validity assessment are presented in Table 4.

Table 4. Discriminant validity (HTMT criterion)

Construct	ETE	UEX	ELI	UXS	CIU
Extra Time or Effort	—				
Unexpected Experience	0.63	—			
Evolving Limitations	0.59	0.61	—		

Construct	ETE	UEX	ELI	UXS	CIU
User Experience Satisfaction	0.71	0.74	0.69	—	—
Continued Intention to Use	0.66	0.68	0.65	0.77	—

As shown in Table 4, all HTMT values are below the conservative threshold of 0.85, confirming discriminant validity among constructs. This indicates that each UX problem dimension captures a unique aspect of user perception, while satisfaction and continued intention represent distinct outcome constructs. The results further support the conceptual clarity of the problem-driven UX framework.

Following the validation of the measurement model, the structural model was evaluated to test the proposed hypotheses. Table 5 summarizes the path coefficients, t-values, and significance levels obtained through bootstrapping with 5,000 subsamples.

Table 5. Structural model results

Hypotheses	Path	β	t-value	p-value	Result
H1	ETE $\rightarrow$ UXS	0.29	4.87	<0.001	Supported
H2	UEX $\rightarrow$ UXS	0.34	5.62	<0.001	Supported
H3	ELI $\rightarrow$ UXS	0.26	4.21	<0.001	Supported
H4	ETE $\rightarrow$ CIU	0.18	2.94	0.003	Supported
H5	UEX $\rightarrow$ CIU	0.21	3.36	0.001	Supported
H6	ELI $\rightarrow$ CIU	0.17	2.78	0.005	Supported
H7	UXS $\rightarrow$ CIU	0.39	6.11	<0.001	Supported

Table 5 demonstrates that all hypothesized relationships are statistically significant. The results indicate significant associations between the problem-driven UX dimensions and both user experience satisfaction and continued intention to use. Users who perceive lower effort, fewer unexpected experiences, and fewer system limitations tend to report higher satisfaction and stronger intentions to continue using the platform. These findings should be interpreted as associative relationships rather than causal effects, given the cross-sectional nature of the data.

The explanatory power of the model is further examined through the coefficient of determination and predictive relevance measures. Table 6 presents the R^2 and Q^2 values for the endogenous constructs.

Table 6. Coefficient of determination and predictive relevance

Endogenous Construct	R^2	Q^2
User Experience Satisfaction	0.61	0.42
Continued Intention to Use	0.68	0.47

The results in Table 6 indicate substantial explanatory power, with 61% of the variance in User Experience Satisfaction and 68% of the variance in Continued Intention to Use explained by the model. The Q^2 values exceed zero, confirming strong predictive relevance. These findings demonstrate that the proposed UX problem-driven model provides a robust explanation of user behavior in the context of public sector digital services.

The findings of this study highlight that user experience problems in government digital platforms operate as structural determinants of public engagement rather than as superficial design issues [25, 26]. The significant influence of Extra Time or Effort [19], confirms that cognitive efficiency and interaction simplicity are critical in transparency-oriented systems, where users often seek specific information under time constraints [1]. Excessive effort, even when data is available, can undermine the perceived value of open government initiatives.

The strong effect of Unexpected Experience [20], on satisfaction and continued use underscores the importance of consistency and predictability in public information systems. Unlike commercial platforms where novelty may be appreciated, government systems are expected to behave in stable and conventional ways. Any deviation from expected interaction patterns may trigger confusion and reduce trust, which is particularly detrimental in contexts involving public accountability and governance [27].

Evolving Limitations also play a decisive role in shaping user perceptions. Technical instability, accessibility issues, and device incompatibility directly constrain the inclusiveness of

transparency platforms [21]. The results suggest that transparency is not solely a matter of data disclosure but also of ensuring equitable and reliable access to that data across different user groups and technological conditions [28].

The mediating role of User Experience Satisfaction indicates that satisfaction serves as a psychological bridge between UX problems and behavioral intention [22, 23]. However, the presence of significant direct effects from UX problem dimensions to continued use suggests that users also make rational evaluations based on system performance [29-31]. This dual pathway highlights that both affective and utilitarian considerations drive sustained usage of government platforms.

Overall, this study contributes to the UX and e-government literature by introducing and empirically validating a problem-driven UX evaluation model that aligns closely with the realities of public sector systems. By shifting the focus from interface aesthetics to cognitive effort, experiential alignment, and systemic limitations, the findings provide a more actionable framework for improving digital transparency initiatives. From a policy perspective, the results imply that investments in open data and digital governance must be accompanied by rigorous UX evaluation to ensure that transparency is not only available but also perceivable and usable by the public.

4. CONCLUSION

This study develops and empirically validates a problem-driven user experience evaluation model for government transparency platforms by integrating three UX problem dimensions—Extra Time or Effort, Unexpected Experience, and Evolving Limitations—within a Partial Least Squares Structural Equation Modeling framework. Based on data from 147 valid users of the Command Center website of Sumedang Regency, the findings demonstrate that all three dimensions significantly influence user experience satisfaction and continued intention to use, both directly and indirectly. The results confirm that user experience in public sector digital systems is shaped not merely by interface aesthetics but by users' cognitive effort, experiential predictability, and systemic reliability.

The primary theoretical contribution of this study lies in shifting the UX evaluation perspective from feature-based or hedonic assessments toward a problem-oriented framework that captures structural frictions in user-system interaction. By conceptualizing UX problems as measurable constructs, this research extends the applicability of UX theory within the e-government and digital transparency domains. The validated model also contributes methodologically by demonstrating that UX problem dimensions can explain a substantial proportion of variance in user satisfaction and sustained use intention, thereby offering a robust explanatory alternative to traditional usability and information system success models.

From a practical standpoint, the findings provide important implications for policymakers and government digital service designers. The results suggest that transparency initiatives will not achieve their intended impact if users encounter excessive effort, unexpected system behavior, or technical limitations. Improving navigation efficiency, ensuring consistent interaction patterns, and addressing accessibility and system stability issues should therefore be prioritized in the development and maintenance of public transparency platforms. In this sense, user experience should be treated as a strategic component of digital governance rather than as a secondary design concern.

The study also carries implications for public trust and civic engagement. A well-designed Command Center that minimizes UX problems can enhance citizens' understanding of government performance and foster sustained engagement with public information. Conversely, unresolved UX issues risk undermining the perceived credibility and usefulness of transparency platforms, even when high-quality data is available. These findings reinforce the notion that effective digital transparency depends on both information openness and experiential usability.

Despite its contributions, this study has several limitations. First, the cross-sectional survey design does not allow for strong causal inference, and reverse relationships—such as users with higher continuation intentions reporting more favorable experiences—cannot be ruled out. Second, the study relies on self-reported perceptual measures, which may be subject to response bias, although procedural and statistical remedies were applied. Third, the empirical context is limited to

a single regional government transparency platform. Future research is encouraged to employ longitudinal designs, experimental approaches, or system usage log data and to replicate the model across different governmental contexts.

Overall, this research underscores that addressing user experience problems is fundamental to realizing the goals of digital transparency and good governance. By providing a validated, problem-driven UX evaluation framework, the study offers both scholars and practitioners a practical and theoretically grounded tool to assess, diagnose, and improve public sector digital platforms in a systematic manner.

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