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FINANCIAL MONITORING SYSTEM FOR WORKSHOPS/SEMINARS OF THE INFORMATICS ENGINEERING STUDENT ASSOCIATION

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Abstract. *Himpunan Mahasiswa Teknik Informatika (HIMATIKA) frequently organizes workshops and seminars funded by the university. However, the current financial management process still faces significant challenges related to transparency and real-time expenditure reporting, which may lead to administrative inefficiencies and reduced stakeholder trust. To address these issues, this study develops a web-based financial monitoring system designed to support accountable, transparent, and digitalized financial management for student association events. This research applies a quantitative approach and utilizes the Design Thinking method for system development. The proposed system enables committee members and treasurers to record income, manage expenditures, and upload digital transaction receipts. In addition, the system automatically calculates cash balances and provides real-time financial visualization through an interactive dashboard accessible to the Head of the Study Program for monitoring purposes. The interface is designed to be simple, responsive, and secure to ensure practical usability during event operations. To evaluate the system's usability and user experience, assessments are conducted using the System Usability Scale (SUS) and the User Experience Questionnaire (UEQ). The implementation of this financial monitoring system is expected to streamline financial management workflows, simplify auditing processes, and improve accountability, transparency, and trust within the student organization.*

Keywords: *Monitoring System, Seminar Finance, Student Association, System Usability Scale (SUS), User Experience Questionnaire (UEQ).*

INTRODUCTION

Within the university ecosystem, student associations play a vital role in developing students' academic and non-academic skills through various activities, such as workshops and seminars. These events are frequently funded by the university as part of institutional support for student development. However, managing the financial aspects of these events often presents significant logistical challenges, particularly regarding transparency and real-time expenditure reporting. Currently, financial tracking relies heavily on

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manual recording, which hinders the committee's ability to present immediate, up-to-date data to internal stakeholders and university officials, such as the Head of the Study Program. This lag in reporting can lead to administrative delays, difficulties during internal audits, and potential misunderstandings or distrust within the organization. Previous studies have highlighted that student organizations consistently encounter administrative roadblocks and efficiency issues when relying on manual ledger systems or decentralized reporting structures (Abdullah, Sarjan, & Tamin, 2021; Fuada et al., 2021; Maldhan, 2019).

To eliminate these transparency issues and streamline the financial workflow, there is an urgent need for a digitized solution. Implementing web-based budgeting and information systems has been proven to significantly optimize the preparation and monitoring of student organization budgets (Amalia, Wati, & Puspitasari, 2021; Wulandari, 2020). A web-based monitoring system can provide an accountable platform where committee members and treasurers can instantly record incoming funds, log expenses under specific categories, and upload digital proof of transactions—such as receipts and invoices—directly from their devices. By automating the calculation of cash balances and offering clear visual representations of expenditures, the system bridges the gap between event execution and financial oversight for organizational stakeholders and university officials. Furthermore, integrating features like automated scheduling or digital documentation drastically improves the timeliness and optimization of financial accountability reports (Setyawati, Ningrum, & Alqodri, 2024).

Building the system, however, requires a well-structured engineering approach. The development of this monitoring platform must adhere to disciplined software development processes and robust information systems analysis to ensure high data reliability and functional integrity (Jogiyanto, 2013; Pressman, 2012). Beyond technical functionality, ensuring the practical viability of the system is equally crucial. Since treasurers and committee members often manage finances amidst the hectic environment of a live event, the system's interface must be highly intuitive, efficient, and responsive. Recent research emphasizes that utilizing user-centered design methodologies and incorporating evaluation frameworks are key to building dashboards that effectively support user workflows in higher education management (Amalia et al., 2026). Therefore, this study not only focuses on the design and development of the web-based financial monitoring platform but also incorporates a rigorous user evaluation phase. By utilizing the System Usability Scale (SUS) and the User Experience Questionnaire (UEQ) methods, this research evaluates the platform's usability and user experience design. This dual-framework evaluation ensures that the system is not only technically sound but also practically optimized to achieve long-term adoption, seamless user experience, and strict financial accountability within student organizations.

LITERATURE REVIEW

2.1 Student Organization Financial Monitoring System

Financial management within student organizations requires a monitoring system capable of supporting transparency, efficiency, and accountability. Financial tracking in student organizations is widely conducted manually through paper-based ledgers, which introduces risks of human error, data loss, and low transparency regarding financial information (Fuada et al., 2021). To address these constraints, digital alternatives like the Android-based SI-TAKESI application have been developed to assist treasurers and organizational committees in managing income, expenditures, and financial statements digitally while promoting information openness to all members (Fuada et al., 2021). Furthermore, shifting toward web-based budgeting systems significantly improves the structure, efficiency, and transparency of fund-utilization reporting (Amalia, Wati, & Puspitasari, 2021; Wulandari, 2020). Implementing such digital monitoring frameworks allows student associations to track real-time fund allocations and accelerates the preparation of event accountability reports (Amalia, Wati, & Puspitasari, 2021; Wulandari, 2020).

2.2 Web-Based Monitoring System and Software Design

A web-based monitoring system serves as an integrated platform used to oversee organizational activities via the internet, offering seamless data access and accelerating reporting workflows. Web-based monitoring and evaluation models have been proven to enhance data administration efficiency, facilitating highly structured and rapid data oversight (da Silva, Lamabelawa, & Bulan, 2016). This web-based

Proceedings of the Perbanas International Seminar on Economics, Business, Management, Accounting and IT
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approach is highly relevant for workshop and seminar financial management, as it enables the student union executive committee to monitor cash inflows and outflows transparently and in real time. Moreover, leveraging web-mobile monitoring applications drastically refines the supervision of student activities and budget utilization (Maldhan, 2019). To ensure technical integrity, the development of these web platforms must adhere to standardized software engineering methodologies and systematic information systems design (Jogiyanto, 2013; Pressman, 2012). Implementing structured analysis tools—such as use case specifications and activity diagrams—guarantees that the web system accurately translates administrative requirements into functional software features (Jogiyanto, 2013; Pressman, 2012).

2.3 Financial Information Systems

A financial information system is engineered to process transactional data into accurate, reliable, and comprehensible financial information. Within student organizations, these systems streamline cash recording, reporting, and budget oversight. For instance, the SI-TAKESI platform utilized the structured Waterfall model to integrate key financial features, including income and expense logging, digital receipt generation, and automated balance monitoring (Fuada et al., 2021). Similarly, transitioning to website-based cash management systems helps student executives manage inflows and outflows far more effectively than manual practices, reducing administrative discrepancies and speeding up financial statement preparation (Abdullah, Sarjan, & Tamin, 2021). Additionally, incorporating optimization features within these information systems helps eliminate administrative bottlenecks, making the monitoring and generation of accountability reports for student activities highly efficient (Setyawati, Ningrum, & Alqodri, 2024).

2.4 User Experience in Financial Monitoring Systems

User Experience (UX) encompasses the overall emotions, perceptions, and responses a user encounters when interacting with an information system. UX stands as a critical determinant for software acceptance and long-term user adoption. Recent studies show that incorporating a user-centered design approach when building financial cash flow dashboards greatly optimizes financial decision-making processes (Amalia et al., 2026). Developed through the Design Thinking framework and evaluated via the User Experience Questionnaire (UEQ), research confirms that well-structured financial dashboards yield outstanding performance scores in attractiveness, efficiency, and dependability (Amalia et al., 2026). This directly boosts user comfort and ease when accessing critical financial data. Consequently, prioritizing user experience is essential when building financial monitoring tools for student organizations to ensure that the platform remains intuitive, practical, and aligned with user workflows during fast-paced events.

2.5 System Usability Scale (SUS) Method

The System Usability Scale (SUS) is a widely accepted usability evaluation method used to measure the perceived ease of use of a system based on user feedback. SUS consists of a ten-item questionnaire answered on a Likert scale, evaluating three core usability parameters: effectiveness, efficiency, and user satisfaction. In the context of a student workshop and seminar financial monitoring platform, the SUS method is deployed to quantify the usability level based on the firsthand experiences of the student association committee. This quick yet reliable metric identifies whether the application's interface allows users to input transactions rapidly amidst their busy event responsibilities, translating subjective user feedback into an actionable, standardized usability score ranging from 0 to 100.

2.6 User Experience Questionnaire (UEQ) Method

The User Experience Questionnaire (UEQ) is an evaluation framework designed to measure user experience comprehensively across both pragmatic and hedonic quality attributes. The UEQ evaluates six specific dimensions: attractiveness, perspicuity, efficiency, dependability, stimulation, and novelty. The UEQ framework is highly effective for evaluating financial monitoring dashboards because it capably captures both the practical utility and the interactive appeal of the interface (Amalia et al., 2026). Employing the UEQ method in this study aims to assess user satisfaction and comfort comprehensively, ensuring that

Proceedings of the Perbanas International Seminar on Economics, Business, Management, Accounting and IT
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the Financial Monitoring System for Workshops and Seminars of the Informatics Engineering Student Association is not only functional but also highly user-friendly.

METHODS

3.1 Research Method

This study uses a quantitative research approach to evaluate the usability and user experience of the developed Financial Monitoring System for workshops and seminars organized by the Informatics Engineering Student Association (HIMATIKA). The quantitative approach is used because the evaluation process utilizes numerical data obtained from questionnaires distributed to system users.

The system development process applies the Design Thinking method, which focuses on user-centered system development to ensure that the application meets user needs and provides a good user experience. The Design Thinking method consists of five stages: empathize, define, ideate, prototype, and testing.

3.2 System Development Method

The development of the Financial Monitoring System applies the Design Thinking method. This method is chosen because it emphasizes understanding user needs and creating solutions based on user experiences. The stages of the Design Thinking method used in this study are as follows:

1. **Empathize**
   At this stage, the researchers collect information related to financial management problems faced by HIMATIKA committees and treasurers through observation and interviews.
2. **Define**
   The collected information is analyzed to identify the main problems and determine the system requirements needed to improve financial transparency and monitoring processes.
3. **Ideate**
   In this stage, researchers generate solution ideas and determine the features to be implemented in the system, such as income recording, expenditure recording, receipt uploads, automatic balance calculation, and dashboard monitoring.
4. **Prototype**
   The prototype stage involves designing and developing the user interface, database structure, and system functionality to create a web-based Financial Monitoring System prototype.
5. **Testing**
   The developed prototype is tested by users to evaluate system functionality, usability, and user experience using the SUS and UEQ methods.

3.3 Population and Sample

The population in this study consists of all users involved in workshops and seminar activities organized by the Informatics Engineering Student Association (HIMATIKA), including committee members, treasurers, and organizational supervisors who utilize the Financial Monitoring System.

The sample of this study is selected from users who directly interact with the developed system during the testing and evaluation process. The respondents consist of committee members and treasurers responsible for managing financial activities in workshops and seminars.

The sampling technique used in this research is purposive sampling, where respondents are selected based on their involvement and experience in using the Financial Monitoring System. The collected responses are used to evaluate the usability and user experience of the system through SUS and UEQ questionnaires.

3.4 Data Collection

The data collection techniques used in this research are conducted through questionnaires, observation, interviews, and literature studies to obtain information related to system requirements, usability, and user experience evaluation.

Proceedings of the Perbanas International Seminar on Economics, Business, Management, Accounting and IT
[June 2026] [ISSN 3047-0951]

a. **Questionnaire**
Questionnaires are distributed to users of the Financial Monitoring System to collect evaluation data related to system usability and user experience. The questionnaires used in this study are the System Usability Scale (SUS) questionnaire and the User Experience Questionnaire (UEQ).

b. **Observation**
Observation is conducted by directly examining the financial management process during workshops and seminars organized by HIMATIKA. This technique helps identify existing problems in manual financial recording and monitoring activities.

3.5 System Evaluation Method

The developed Financial Monitoring System is evaluated using the System Usability Scale (SUS) and User Experience Questionnaire (UEQ) methods to measure the usability and overall user experience of the application.

a. **System Usability Scale (SUS)**
The System Usability Scale (SUS) is used to evaluate the usability level of the developed system based on user perceptions. SUS consists of 10 questionnaire statements answered using a 5-point Likert scale ranging from strongly disagree to strongly agree. The SUS evaluation measures:
- Effectiveness
- Efficiency
- User satisfaction

The SUS score is calculated using the following formula:
SUS Score = (∑ Score Contribution) × 2.5
The final SUS score ranges from 0 to 100, where a higher score indicates better usability and user acceptance of the system.

b. **User Experience Questionnaire (UEQ)**
The User Experience Questionnaire (UEQ) method is used to evaluate the overall user experience of the developed system. The UEQ questionnaire consists of pairs of opposite attributes measured using a 7-point semantic differential scale.
The UEQ evaluates six dimensions:
- Attractiveness
- Perspicuity
- Perspicuity
- Dependability
- Stimulation
- Novelty

The UEQ results are analyzed to determine users' impressions, satisfaction, comfort, and interaction experience while using the Financial Monitoring System.

3.6 Research Framework

The research framework in this study begins with identifying problems related to manual financial management and lack of transparency in workshop and seminar activities organized by HIMATIKA. Data are collected through observation, interviews, questionnaires, and literature studies to understand user needs and system requirements. The system development process applies the Design Thinking method, which consists of empathize, define, ideate, prototype, and testing stages. Through these stages, the Financial Monitoring System is designed and developed based on user-centered approaches to ensure usability and effectiveness. After the system is developed, testing and evaluation are conducted using the System Usability Scale (SUS) and User Experience Questionnaire (UEQ) methods to measure usability and user experience. Finally, the evaluation results are analyzed to determine the effectiveness and overall performance of the developed system.

Proceedings of the Perbanas International Seminar on Economics, Business, Management, Accounting and IT
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RESULTS AND DISCUSSION

The evaluation of the Financial Monitoring System for HIMATIKA was conducted to determine its usability and user experience using two standardized evaluation frameworks: the System Usability Scale (SUS) and the User Experience Questionnaire (UEQ). The questionnaires were distributed to system users, including committee members and treasurers who actively participated in managing the event's finances.

4.1. System Usability Scale (SUS) Results

The System Usability Scale (SUS) was employed to quantify the usability level based on the perceived ease of use. A modified SUS questionnaire with positively phrased items was distributed to the respondents. The results were calculated by subtracting 1 from the raw score of each item, summing the results, and multiplying by 2.5 to get a scale of 0 to 100.

Based on the data collected, the average scores for each SUS question are presented in Table 1.

No	Question Item (Translated to English context)	Average Score (1-5)
1	I think that I would like to use this system frequently	4.15
2	I found the system to be not unnecessarily complex	4.04
3	I thought the system was easy to use	4.42
4	I think that I would not need the support of a technical person	4.38
5	I found the various functions in this system were well integrated	4.42
6	I thought there was not too much inconsistency in this system	3.73
7	I would imagine that most people would learn to use this system very quickly	4.46
8	I found the system very practical to use	4.38
9	I felt very confident using the system	4.31
10	I did not need to learn a lot of things before I could get going with this system	4.54

TABLE 1. Average SUS Item Scores

The calculation of the overall SUS score resulted in a final score of **82.12**. According to the SUS evaluation standards, a score above 68 is considered above average. A score of 82.12 falls into the **"Acceptable"** acceptability range, corresponds to a **Grade of B/A**, and earns an **"Excellent"** adjective rating. This indicates that the developed web-based monitoring system is highly usable and allows the committee to seamlessly manage financial workflows.

4.2. User Experience Questionnaire (UEQ) Results

The UEQ was utilized to evaluate the comprehensive user experience across both pragmatic (goal-directed) and hedonic (non-goal-directed) quality attributes. The questionnaire consists of 26 items grouped into six dimensions: Attractiveness, Perspicuity, Efficiency, Dependability, Stimulation, and Novelty. The scores range from -3 (most negative) to +3 (most positive), where values greater than 0.8 represent a positive evaluation. The calculation of the UEQ data yielded the following mean scores for each dimension, which can be visualized in Figure 1:

Proceedings of the Perbanas International Seminar on Economics, Business, Management, Accounting and IT
[June 2026] [ISSN 3047-0951]

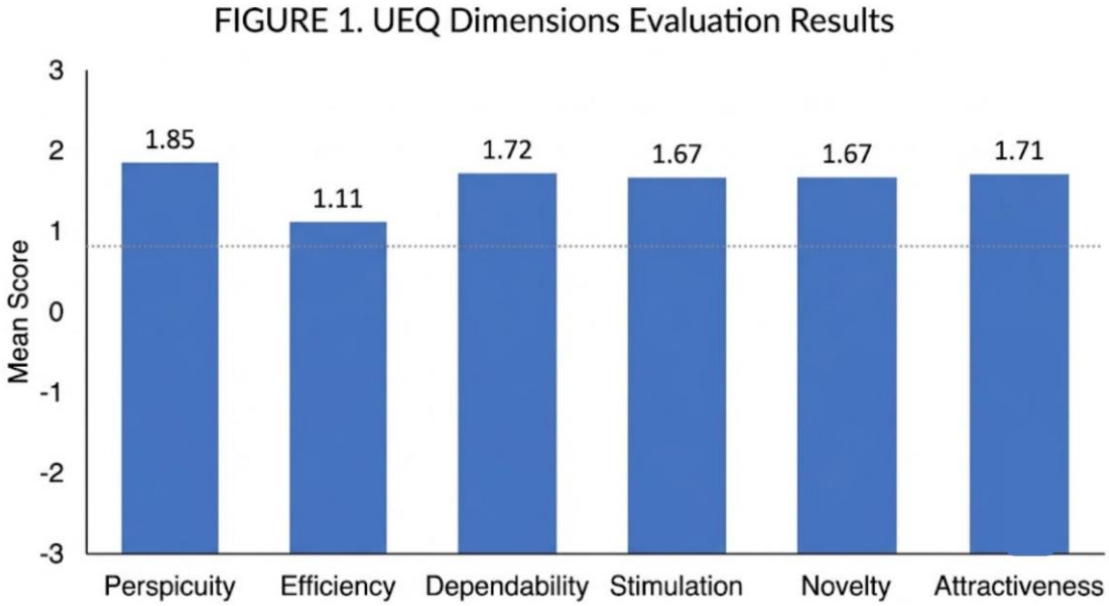

FIGURE 1. UEQ Dimensions Evaluation Results

All six dimensions achieved scores significantly higher than 0.8, demonstrating a highly positive user experience. The Perspicuity dimension received the highest score (1.85), highlighting that the financial monitoring dashboard is highly intuitive and easy for the student committee to understand without steep learning curves. The pragmatic qualities (Perspicuity, Efficiency, Dependability) and hedonic qualities (Stimulation, Novelty) are well-balanced, indicating that the system not only fulfills functional requirements for financial tracking but is also engaging and appealing to its users.

4.3. Discussion

The primary objective of this research was to develop a digitized financial monitoring solution that addresses the transparency and efficiency challenges faced by the HIMATIKA committee. The evaluation results validate the success of this transition from manual paper-based ledgers to a web-based dashboard. With an Excellent SUS score of 82.12, it is evident that the user interface effectively minimizes administrative roadblocks during live event operations. Furthermore, the UEQ results highlight strong dependability (1.72) and efficiency (1.11), meaning users trust the system for real-time automated balance calculation and accurate financial reporting to organizational stakeholders. The high scores confirm that the system successfully optimizes financial accountability and promotes transparency within the student organization.

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CONCLUSIONS

This study successfully developed a web-based Financial Monitoring System for workshops and seminars organized by the Informatics Engineering Student Association (HIMATIKA) to address issues related to manual financial management, lack of transparency, and inefficient reporting processes. By implementing a user-centered Design Thinking approach, the developed system provides features such as income and expenditure recording, digital receipt uploads, automatic balance calculations, and real-time dashboard monitoring to support more efficient financial administration.

The evaluation results indicate that the developed system performs effectively in terms of usability and user experience. The System Usability Scale (SUS) evaluation produced a score of 82.12, which falls within the "Excellent" category and demonstrates a high level of user acceptance. Furthermore, the User Experience Questionnaire (UEQ) results revealed positive scores across all evaluated dimensions, including attractiveness, perspicuity, efficiency, dependability, stimulation, and novelty. These findings indicate that the system is not only functional and easy to use but also capable of providing a positive and engaging user experience.

Overall, the implementation of the Financial Monitoring System contributes to improving financial accountability, transparency, and operational efficiency within student organization activities. Future studies may focus on integrating additional features, such as mobile application support, automated financial report generation, and broader testing involving larger and more diverse user groups to further enhance system performance and scalability.

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