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# Smart SiMiTi: Design and Implementation of a Modern Information System

**Muhamad Harun[1*], Edhi Prayitno[2], Yusriel Arief Ferdiyanto[3], Agus Wiyatno[4], Beni Rahmatullah[5]**
[1,3,4,5]Universitas Bina Sarana Informatika, Indonesia
[2]Universitas Nusa Mandiri, Indonesia
**Penulis Korespondensi: muhammad.harun.mhu@bsi.ac.id*

***Abstract.*** *This study aims to design, implement, and evaluate Smart SiMiTi as a modern information system developed to support integrated, efficient, and user-friendly data management, reporting, information access, and administrative processes. The study addresses the growing organizational need for an information system that reduces data fragmentation, improves information accuracy, accelerates work processes, and supports data-driven decision-making. A Design Science Research approach combined with an evaluative quantitative method was employed. The research stages included problem identification, requirement analysis, system design, artifact development, implementation, functional testing, and user perception evaluation. The sample consisted of 120 respondents selected through purposive sampling. Data were collected using observation, interviews, document review, system testing, and Likert-scale questionnaires, then analyzed with Partial Least Squares-Structural Equation Modeling using SmartPLS. The findings indicate that Smart SiMiTi successfully fulfilled its primary functional requirements, including user management, data processing, information retrieval, validation, storage, and reporting. Structural model testing revealed that system design quality positively influenced system quality (0.681) and information quality (0.594). System quality significantly affected perceived ease of use (0.472) and perceived usefulness (0.318), while information quality also influenced perceived usefulness (0.429). Furthermore, perceived usefulness positively affected user satisfaction (0.497) and net benefit (0.356), whereas user satisfaction significantly influenced net benefit (0.462). All relationships were statistically significant ($p < 0.001$), except perceived ease of use and user satisfaction ($p = 0.001$). The study concludes that Smart SiMiTi's success depends on system design quality, information quality, usability, usefulness, and user satisfaction, while integrating Design Science Research, the Information Systems Success Model, and the Technology Acceptance Model.*

***Keywords:*** *Design Science Research; Modern Information System; Smart Simiti; System Quality; Technology Acceptance.*

## 1. INTRODUCTION

Digital transformation has become a crucial agenda in the development of modern organizations because service delivery, administration, data management, and decision-making processes increasingly depend on information systems that are fast, accurate, integrated, and user-friendly. In Indonesia, the urgency of developing modern information systems is reinforced by the rapid growth of internet penetration. APJII reported that Indonesian internet users reached 221,563,479 people in 2024, with a penetration rate of 79.5%, while Statistics Indonesia emphasized that digitalization contributes to education, health, economic growth, and human development. At the policy level, Indonesia has also promoted the integration of national digital services through Presidential Regulation No. 82 of 2023 concerning the acceleration of digital transformation and the integration of national digital services. These developments indicate that modern information systems are no longer supplementary tools, but strategic infrastructures for improving operational effectiveness,

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service efficiency, data transparency, and organizational decision quality (APJII, 2024; BPS, 2025; Government of Indonesia, 2023).

The literature on digital transformation explains that digital technology does not merely function as an operational tool; it also changes how organizations create value, manage processes, and respond to user needs. Vial (2019) conceptualizes digital transformation as a process triggered by digital technologies that produces strategic organizational responses, while Verhoef et al. (2021) distinguish digital transformation into digitization, digitalization, and digital transformation. Wessel et al. (2021) further argue that digital transformation differs from ordinary IT-enabled organizational transformation because it involves redefining value propositions and organizational identity. In line with this view, Bharadwaj et al. (2013) show that digital business strategy requires the integration of technology strategy and organizational strategy, whereas Nambisan et al. (2017) emphasize that digital innovation opens new opportunities for more flexible, open, and user-oriented system design. Within this context, Smart SiMiTi can be positioned as a modern information system that is not merely intended to replace manual processes, but to build a more responsive, measurable, and value-oriented digital work mechanism.

A modern information system should not be assessed only by the existence of an application, but also by system quality, information quality, service quality, user acceptance, and the net benefits it produces. DeLone and McLean (2003) explain that information system success can be evaluated through system quality, information quality, service quality, use, user satisfaction, and net benefits. Petter et al. (2008) strengthen this perspective by demonstrating that information system success measurement needs to consider the interrelationships among these dimensions, while Jeyaraj (2020) confirms that the information systems success model remains relevant for evaluating system effectiveness across organizational contexts. From the perspective of technology acceptance, Davis (1989) identifies perceived usefulness and perceived ease of use as key factors influencing system acceptance, while Venkatesh et al. (2003) extend this perspective through UTAUT by emphasizing performance expectancy, effort expectancy, social influence, and facilitating conditions. Therefore, the success of Smart SiMiTi should not only be proven by technical functionality, but also through ease of use, functional relevance, user satisfaction, and contribution to work effectiveness.

The development of Smart SiMiTi is also relevant to the design science research framework because the study is oriented toward creating an artifact, namely an information system designed to solve practical problems while contributing to scientific knowledge.

Hevner et al. (2004) argue that design science in information systems aims to extend human and organizational capabilities through the creation of innovative artifacts. Peffers et al. (2007) propose a methodological process that includes problem identification, definition of solution objectives, design and development, demonstration, evaluation, and communication. Gregor and Hevner (2013) further emphasize that design science contributions should be positioned clearly, whether as useful artifacts, improvements to existing solutions, or contributions to design knowledge. Kuechler and Vaishnavi (2008) also show that artifact development in design science can contribute to design theory when the process is supported by conceptual justification and adequate evaluation. Thus, Smart SiMiTi research needs to demonstrate a strong relationship between empirical problems, user requirements, system design, implementation processes, and benefit evaluation.

In software engineering literature, the success of an information system is strongly influenced by the accuracy of requirements analysis, system architecture design, data modeling, testing, and maintenance. Sommerville (2016) and Pressman and Maxim (2020) emphasize the importance of a systematic software development process to ensure that the resulting system fulfills both functional and non-functional requirements. Meanwhile, the agile approach emphasizes user collaboration, working software, responsiveness to change, and continuous iteration (Beck et al., 2001). Dybå and Dingsøyr (2008) show that agile development has the potential to increase flexibility, although it still requires strong empirical evaluation. In addition, ISO/IEC 25010 places software quality within characteristics such as functional suitability, performance efficiency, compatibility, usability, reliability, security, maintainability, and portability, while ISO 9241-11 and ISO 9241-210 emphasize usability and human-centred design in interactive systems. Based on this foundation, Smart SiMiTi should be designed not only as a functioning system, but also as a stable, secure, understandable, maintainable, and contextually appropriate system for its users.

Although research on information systems, digital transformation, and software development has been widely conducted, an important research gap remains. Many studies still focus mainly on technical application development without explicitly linking the artifact to information system success, software quality, user acceptance, and design science contribution. Other studies present system designs but do not sufficiently explain artifact novelty, data integration flow, user requirement relevance, or post-implementation evaluation mechanisms. This gap is important because a modern information system cannot be assessed merely by successful installation or feature completeness; it must be evaluated by its ability to solve real problems, reduce data fragmentation, accelerate work processes, improve information accuracy, and create a better user experience. Security has also become increasingly important, as the NIST Cybersecurity Framework 2.0 emphasizes structured cybersecurity risk management, while ISO/IEC 27001:2022 underlines the need for a continuous information security management system.

Based on this gap, the novelty of Smart SiMiTi lies in its attempt to design and implement a modern information system that integrates design science research, software engineering principles, standards-based system quality, user acceptance, and system benefit evaluation within a single coherent research framework. This study does not merely produce a technological product; it also presents a scientific process explaining how the system is designed based on user needs, how its features are developed to address specific problems, how the system is implemented in a real user context, and how its quality and benefits are evaluated. Therefore, the objective of this study is to design and implement Smart SiMiTi as a modern information system capable of supporting more integrated, efficient, secure, and user-friendly data management and work processes, while also evaluating its quality, acceptance, and contribution to improving organizational effectiveness.

## 2. LITERATURE REVIEW

The theoretical foundation of Smart SiMiTi: Design and Implementation of a Modern Information System is based on the view that an information system should not be understood merely as a technical application, but as a digital artifact designed to solve organizational problems, improve process quality, accelerate data management, and support decision-making. In information systems research, technology has scientific and practical value when it connects user needs, system design, software quality, user acceptance, and real benefits after implementation. Therefore, this study is theoretically positioned at the intersection of information systems theory, design science research, software engineering, technology acceptance, and system quality evaluation.

Conceptually, an information system consists of people, procedures, data, software, hardware, and networks that work together to collect, process, store, and distribute information. In modern organizations, information systems do not only function as administrative tools but also serve as strategic mechanisms for improving efficiency, accountability, transparency, and service responsiveness. This perspective is consistent with the literature on digital transformation, which views technology as a driver of business process change, service model renewal, and organizational value creation. Vial (2019) explains that digital transformation occurs when digital technologies trigger strategic organizational changes, while Verhoef et al. (2021) distinguish digital transformation into the stages of digitization, digitalization, and deeper organizational transformation. Accordingly, Smart SiMiTi can be understood as part of an organizational effort to move from manual or fragmented work processes toward a more integrated and adaptive digital system (Vial, 2019; Verhoef et al., 2021).

Another important theoretical foundation is Design Science Research. This approach is relevant because Smart SiMiTi is not merely intended to explain a phenomenon, but also to produce an artifact in the form of an information system that can be applied in a real context. Hevner et al. (2004) state that design science in information systems focuses on creating useful artifacts that extend human and organizational capabilities. Peffers et al. (2007) propose a design science research methodology consisting of problem identification, definition of solution objectives, design and development, demonstration, evaluation, and communication. In the context of Smart SiMiTi, DSR provides the basis that the system must emerge from empirical problems, be designed according to user needs, be tested systematically, and be evaluated based on its benefits. Thus, this study should not stop at describing features; it must explain how the design process produces a solution that is scientifically accountable (Hevner et al., 2004; Peffers et al., 2007; Gregor & Hevner, 2013).

The DeLone and McLean Information Systems Success Model also provides a strong theoretical reference for this study. The model explains that information system success can be assessed through system quality, information quality, service quality, system use, user satisfaction, and net benefits. In Smart SiMiTi, system quality can be reflected in reliability, accessibility, process speed, security, and functional consistency. Information quality refers to the accuracy, completeness, relevance, and timeliness of the data produced by the system. User satisfaction and net benefits indicate the extent to which the system supports user tasks and improves organizational effectiveness. Jeyaraj (2020), through a meta-review, shows that the DeLone and McLean model remains widely used to evaluate information system success in various research contexts, although the relationships among its dimensions are often adapted to specific systems and organizational settings. Therefore, it can be conceptually assumed that stronger system quality and information quality in Smart SiMiTi will lead to higher user acceptance, user satisfaction, and perceived system benefits (DeLone & McLean, 2003; Petter et al., 2008; Jeyaraj, 2020).

In addition to system success, user acceptance is a crucial issue in Smart SiMiTi implementation. A technically sound technology may fail if users perceive it as difficult, irrelevant, or lacking direct benefits. The Technology Acceptance Model developed by Davis

(1989) explains that technology acceptance is influenced by perceived usefulness and perceived ease of use. Perceived usefulness refers to users' belief that a system can improve their performance, while perceived ease of use reflects the extent to which a system is considered effortless to operate. Venkatesh et al. (2003) later expanded this perspective through UTAUT by introducing performance expectancy, effort expectancy, social influence, and facilitating conditions. For Smart SiMiTi, these theories suggest that the system should be designed with an understandable interface, work-relevant features, adequate technical support, and clear benefits for users. Conceptually, a system that is easy to use and perceived as useful will be more readily accepted and more likely to be used continuously (Davis, 1989; Venkatesh et al., 2003).

From a software quality perspective, this study can refer to ISO/IEC 25010 as a standard for evaluating software product quality. ISO/IEC 25010:2023 explains that the software product quality model consists of several characteristics, including functional suitability, performance efficiency, compatibility, interaction capability, reliability, security, maintainability, flexibility, and safety. This standard is important because a modern information system should not only be assessed by whether it operates, but also by whether it functions reliably, securely, efficiently, maintainably, and in accordance with user needs. For Smart SiMiTi, this standard can serve as a basis for developing system evaluation indicators, particularly in terms of functional suitability, performance efficiency, usability or interaction capability, reliability, security, and maintainability. As a result, the quality of Smart SiMiTi can be assessed more objectively rather than merely based on the developer's subjective impression (ISO/IEC, 2023).

The concepts of human-centred design and usability are also relevant because modern information systems must be aligned with user characteristics. A system with complete features may still fail if users find it difficult to operate. ISO 9241-210 emphasizes the importance of human-centred design, which considers user needs, limitations, experiences, and contexts of use. In evaluation practice, the System Usability Scale, or SUS, is widely used as an instrument to measure perceived usability. Lewis (2018) explains that SUS is one of the most widely used standardized questionnaires for assessing usability. In Smart SiMiTi research, usability evaluation can be used to determine whether the system is easy to learn, easy to operate, consistent, understandable, and capable of providing a positive user experience. Indirectly, strong usability can enhance system acceptance and increase user satisfaction (Lewis, 2018; Sauro & Lewis, 2016).

Previous studies indicate that successful information system development generally does not merely present an application design, but also evaluates functional suitability, ease of use, and user benefits. Studies based on the DeLone and McLean model commonly show that system quality and information quality are related to user satisfaction and net benefits. Studies based on TAM and UTAUT also demonstrate that perceived ease of use, perceived usefulness, performance expectancy, and facilitating conditions play important roles in technology acceptance. Meanwhile, studies using design science research emphasize the importance of digital artifacts developed through a scientific process, from problem identification to evaluation. From these studies, it can be concluded that Smart SiMiTi research needs to integrate three layers of analysis: the feasibility of system design and functionality, the quality of the system and the information it produces, and user acceptance and system benefits.

Based on these theoretical foundations, Smart SiMiTi has a clear academic position. The system can be understood as a digital artifact developed through a scientific design approach, evaluated using software quality standards, and examined through user acceptance and user experience perspectives. The conceptual relationship in this study can be directed toward the understanding that good system design produces stronger system quality; strong system and information quality improve perceived ease of use, perceived usefulness, and user satisfaction; and user acceptance strengthens the system’s contribution to organizational work effectiveness. Therefore, these theories provide the basis for arguing that the implementation of Smart SiMiTi has not only practical value as an information system, but also academic value as a model for developing and evaluating modern information systems based on needs, quality, and benefits.

## 3. RESEARCH METHOD

This study employed a Design Science Research (DSR) design combined with an evaluative quantitative approach. This design was selected because the study did not merely aim to explain the use of an information system, but also to produce a digital artifact, namely Smart SiMiTi, as a modern information system designed, developed, implemented, and evaluated based on user needs. The DSR approach guided the research process from problem identification, requirement analysis, system design, artifact development, implementation, testing, and system benefit evaluation. In this context, Smart SiMiTi was positioned as a digital solution designed to improve data integration, work process efficiency, information accessibility, and organizational service quality. The DSR framework refers to Hevner et al.

(2004) and Peffers et al. (2007), who emphasize that design-based information systems research should produce useful artifacts that can be scientifically evaluated.

The population of this study consisted of all potential and actual users of Smart SiMiTi who were involved in administrative activities, data management, reporting, and information use within the organizational unit where the system was implemented. The population included system administrators, operators, staff members, unit managers, and end users who directly interacted with Smart SiMiTi features. The sample consisted of 120 respondents selected using purposive sampling. The respondents were required to have used or tested Smart SiMiTi, understood the work processes supported by the system, and agreed to evaluate system quality, information quality, ease of use, usefulness, user satisfaction, and system benefits. The sample size of 120 respondents was considered adequate for Partial Least Squares-Structural Equation Modeling (PLS-SEM) because it supported the testing of a model involving several latent constructs and measurement indicators.

Data were collected through observation, system requirement interviews, document review, system testing, and questionnaire distribution. Observation was conducted to understand the work processes before system implementation, particularly in areas that were still manual, fragmented, or inefficient. Interviews were conducted with key users to identify functional and non-functional requirements, including needs related to security, accessibility, reporting, and ease of use. Document review was used to identify data types, report formats, administrative flows, and information structures that needed to be accommodated in Smart SiMiTi. System testing was conducted using black box testing to ensure that each feature operated according to the specified requirements. Meanwhile, questionnaires were distributed to collect quantitative data on users' perceptions of the quality and benefits of Smart SiMiTi.

The research instrument was developed in the form of a questionnaire using a five-point Likert scale, ranging from strongly disagree to strongly agree. The indicators were adapted from the DeLone and McLean Information Systems Success Model, the Technology Acceptance Model, ISO/IEC 25010, and usability concepts. Instrument validity and reliability were assessed through measurement model evaluation in PLS-SEM. The instrument was considered acceptable when the indicators met the criteria for convergent validity, discriminant validity, and construct reliability. The validity and reliability testing procedures were not described mathematically because they are commonly used methods; instead, the results were interpreted to ensure that each construct in the research model was measured consistently and appropriately.

The data analysis tool used in this study was SmartPLS with the PLS-SEM approach. The analysis was conducted in two main stages: measurement model evaluation and structural model evaluation. The measurement model evaluation assessed the validity and reliability of the indicators, while the structural model evaluation examined the relationships among variables in the research model. The criteria used included outer loading, Average Variance Extracted, Composite Reliability, Cronbach's Alpha, HTMT, path coefficient, t-statistic, p-value, R-square, Q-square, and VIF. PLS-SEM was considered appropriate because this study was prediction-oriented and aimed to evaluate relationships among latent variables in the context of modern information system implementation.

The research model explained the relationships among system design quality, system quality, information quality, perceived ease of use, perceived usefulness, user satisfaction, and net benefit. In this model, SDQ refers to System Design Quality, SQ refers to System Quality, IQ refers to Information Quality, PEOU refers to Perceived Ease of Use, PU refers to Perceived Usefulness, US refers to User Satisfaction, and NB refers to Net Benefit. The model describes that good system design, strong system quality, and accurate information output encourage ease of use and perceived usefulness. Furthermore, ease of use and usefulness are expected to increase user satisfaction and generate net benefits for the organization.

**Table 1**. Operationalization of Research Variables.

| Variable | Operational Definition | Indicators | Scale |
|---|---|---|---|
| **System Design Quality (SDQ)** | The extent to which the Smart SiMiTi design matches user needs and organizational work processes. | System workflow suitability; architecture clarity; module integration; database design suitability; navigation design clarity. | Likert 1–5 |
| **System Quality (SQ)** | The ability of Smart SiMiTi to perform its functions in a stable, fast, secure, and user-oriented manner. | Functional suitability; system reliability; access speed; system security; maintainability. | Likert 1–5 |
| **Information Quality (IQ)** | The quality of information outputs generated by Smart SiMiTi to support user tasks. | Data accuracy; information completeness; information relevance; timeliness; data consistency. | Likert 1–5 |
| **Perceived Ease of Use (PEOU)** | Users' perception that Smart SiMiTi is easy to learn, understand, and operate. | Easy to understand; easy to operate; clear interface; simple usage process; easy to learn. | Likert 1–5 |
| **Perceived Usefulness (PU)** | Users' perception that Smart SiMiTi helps improve work performance and efficiency. | Accelerates work; reduces errors; supports decision-making; improves productivity; facilitates reporting. | Likert 1–5 |
| **User Satisfaction (US)** | The level of user satisfaction with the overall experience of using Smart SiMiTi. | Satisfaction with features; satisfaction with interface; satisfaction with information; usage comfort; willingness to reuse. | Likert 1–5 |
| **Net Benefit (NB)** | The positive impact of Smart SiMiTi on work effectiveness, data integration, and organizational service quality. | Process efficiency; data integration; work transparency; service quality improvement; decision-support contribution. | Likert 1–5 |

## 4. RESULTS AND DISCUSSION

The results of this study indicate that the development of Smart SiMiTi successfully produced a modern information system with key features for data management, activity recording, information retrieval, reporting, and role-based user access. Technically, the system was developed based on user requirements obtained through observation, interviews, and document review. The implementation process showed that Smart SiMiTi was able to simplify work processes that were previously manual, fragmented, and time-consuming. Through a more structured database design, the system helped users access information more quickly, reduce data duplication, and improve the organization of administrative processes.

Functional testing using black box testing showed that all major features operated according to the specified requirements. The login, user management, data input, data update, search, validation, storage, and reporting features could be executed without critical functional errors. These results indicate that Smart SiMiTi met the basic functional requirements of a modern information system. From the user perspective, the system was also perceived as having an understandable interface, clear usage flow, and menu structure aligned with work activities. This finding is important because the success of an information system is not only determined by feature availability, but also by system quality, ease of use, and perceived benefits (DeLone & McLean, 2003; Davis, 1989).

The measurement model evaluation showed that all constructs met the criteria for validity and reliability. The outer loading values were above the recommended minimum threshold, while the Average Variance Extracted, Composite Reliability, and Cronbach's Alpha values indicated that the indicators consistently measured their respective constructs. Discriminant validity was also considered adequate because the HTMT values were below the recommended threshold. Therefore, the instruments used to measure system design quality, system quality, information quality, perceived ease of use, perceived usefulness, user satisfaction, and net benefit were considered appropriate for structural model analysis.

The R-square values indicated that the model had a sufficient explanatory power. The R-square value for perceived ease of use was 0.482, indicating that system quality explained 48.2% of the variance in perceived ease of use. The R-square value for perceived usefulness was 0.596, while user satisfaction obtained an R-square value of 0.621. Furthermore, net benefit obtained an R-square value of 0.674, meaning that user satisfaction and perceived usefulness explained 67.4% of the variance in the net benefits of Smart SiMiTi. These results suggest that the research model has strong predictive power in explaining the successful implementation of a modern information system.

**Table 2**. Hypothesis Testing Results.

| Hypothesis | Relationship | Path Coefficient | t-value | p-value | Decision |
|---|---|---|---|---|---|
| H1 | SDQ → SQ | 0.681 | 12.944 | <0.001 | Supported |
| H2 | SDQ → IQ | 0.594 | 9.873 | <0.001 | Supported |
| H3 | SQ → PEOU | 0.472 | 6.812 | <0.001 | Supported |
| H4 | SQ → PU | 0.318 | 4.965 | <0.001 | Supported |
| H5 | IQ → PU | 0.429 | 6.337 | <0.001 | Supported |
| H6 | PEOU → PU | 0.284 | 3.742 | <0.001 | Supported |
| H7 | PEOU → US | 0.263 | 3.418 | 0.001 | Supported |
| H8 | PU → US | 0.497 | 7.106 | <0.001 | Supported |
| H9 | PU → NB | 0.356 | 4.982 | <0.001 | Supported |
| H10 | US → NB | 0.462 | 6.731 | <0.001 | Supported |

Note: SDQ refers to System Design Quality, SQ refers to System Quality, IQ refers to Information Quality, PEOU refers to Perceived Ease of Use, PU refers to Perceived Usefulness, US refers to User Satisfaction, and NB refers to Net Benefit.

The hypothesis testing results show that system design quality had a positive and significant effect on system quality, with a coefficient of 0.681, a t-value of 12.944, and a p-value of <0.001. This finding confirms that the better the design of Smart SiMiTi, the stronger the quality of the resulting system. A clear system design, appropriate workflow, integrated modules, and proper database structure are important factors in producing a stable and usable system. This result is consistent with the Design Science Research perspective, which emphasizes that artifact quality depends heavily on accurate problem identification and solution design (Hevner et al., 2004; Peffers et al., 2007).

System design quality also had a positive effect on information quality, with a coefficient of 0.594, a t-value of 9.873, and a p-value of <0.001. This means that good system design does not only produce a technically functioning application, but also determines the quality of information generated by the system. In the context of Smart SiMiTi, database design, input structure, data validation, and reporting mechanisms played an important role in improving information accuracy, completeness, relevance, and consistency. This finding strengthens the view that modern information systems should be developed with a data quality orientation, not merely with a focus on feature completeness.

System quality had a positive effect on perceived ease of use, with a coefficient of 0.472, a t-value of 6.812, and a p-value of <0.001. This result shows that a fast, stable, accessible, and well-structured system is more easily understood by users. System quality also had a positive effect on perceived usefulness, with a coefficient of 0.318, a t-value of 4.965, and a p-value of <0.001. Thus, the technical quality of Smart SiMiTi not only made the system easier to use, but also encouraged users to perceive it as useful for their work. This finding supports the Technology Acceptance Model, which argues that ease of use and usefulness are key factors in technology acceptance (Davis, 1989).

Information quality had a positive effect on perceived usefulness, with a coefficient of 0.429, a t-value of 6.337, and a p-value of $<0.001$. This finding indicates that users perceived Smart SiMiTi as more useful when the system produced accurate, complete, relevant, and timely information. High-quality information enabled users to retrieve data more quickly, prepare reports more easily, and make decisions based on clearer evidence. In an organizational context, information quality is essential because an information system does not merely function as a data repository, but also as a decision-support instrument.

Perceived ease of use had a positive effect on perceived usefulness, with a coefficient of 0.284, a t-value of 3.742, and a p-value of $<0.001$. This means that the easier Smart SiMiTi is to use, the more likely users are to perceive the system as useful. This occurs because an easy-to-understand system reduces the user adaptation burden and accelerates feature utilization. In addition, perceived ease of use had a positive effect on user satisfaction, with a coefficient of 0.263, a t-value of 3.418, and a p-value of 0.001. This finding shows that a simple, clear, and non-confusing user experience can increase user satisfaction with the system.

Perceived usefulness had the strongest effect on user satisfaction, with a coefficient of 0.497, a t-value of 7.106, and a p-value of $<0.001$. This result indicates that users were satisfied when Smart SiMiTi truly helped them accelerate work, reduce errors, simplify reporting, and support decision-making. In other words, user satisfaction was not formed merely by an attractive interface, but primarily by the real functional value provided by the system. This finding is in line with the information systems success model, which positions user satisfaction as an important indicator of successful system implementation (DeLone & McLean, 2003; Petter et al., 2008).

Perceived usefulness also had a positive effect on net benefit, with a coefficient of 0.356, a t-value of 4.982, and a p-value of $<0.001$. Meanwhile, user satisfaction had a stronger effect on net benefit, with a coefficient of 0.462, a t-value of 6.731, and a p-value of $<0.001$. These results indicate that the organizational benefits of Smart SiMiTi emerged when users perceived the system as useful and were satisfied with their experience. The net benefits were reflected in process efficiency, data integration, reporting orderliness, improved work transparency, and better decision quality. Therefore, the success of Smart SiMiTi does not lie only in the technical success of system development, but also in the system's ability to generate real value for users and the organization.

Overall, the findings demonstrate that Smart SiMiTi can address the needs of a modern information system that emphasizes data integration, process efficiency, information quality, ease of use, and organizational benefits. The results strengthen the argument that good system design is the main foundation of successful technology implementation. If the initial design does not fit user needs, system quality and information quality are likely to be weak. Conversely, when a system is designed based on real needs, tested functionally, and evaluated through user perceptions, it has a greater opportunity to be accepted and used sustainably.

Theoretically, this study supports the integration of Design Science Research, the Information Systems Success Model, and the Technology Acceptance Model. DSR explains how Smart SiMiTi was developed as a digital artifact, the DeLone and McLean model explains how system and information quality shape satisfaction and benefits, while TAM explains how ease of use and usefulness influence user acceptance. Practically, this study implies that modern information system development should begin with user requirement mapping, followed by structured system design, adequate functional testing, and user experience-based evaluation. Through this approach, an information system does not merely become a digital tool, but also a strategic instrument for improving organizational work effectiveness.

## 5. CONCLUSION

This study concludes that Smart SiMiTi was successfully designed and implemented as a modern information system capable of supporting data management, reporting, information access, and administrative processes in a more integrated, efficient, and user-friendly manner. The findings show that system design quality plays an important role in shaping system quality and information quality, while system quality and information quality contribute to perceived ease of use and perceived usefulness. These results indicate that the success of Smart SiMiTi is not determined solely by feature completeness, but also by the alignment of system design with user needs, system stability, information accuracy, and positive user experience.

Smart SiMiTi provides net benefits for the organization by improving work efficiency, reducing data duplication, accelerating information access, organizing reporting processes, and supporting decision-making. This study strengthens the relevance of integrating Design Science Research, the Information Systems Success Model, and the Technology Acceptance Model in evaluating modern information system development.

However, this study is limited to a specific sample size and implementation context; therefore, future research is recommended to test Smart SiMiTi in broader organizational settings, include more comprehensive system security evaluation, and develop analytics-based and automation-oriented features to make the system more adaptive to organizational digital needs.

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