

Development of UI/UX and design thinking integration model for optimizing oisrum's MSME digital platform

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ARTICLE INFO	ABSTRACT
Article history: Received Oct 1, 2026 Revised Oct 10, 2026 Accepted Oct 22, 2026 Keywords: Design Thinking; MSMEs; UI/UX; Usability; User-Centered Design.	Usability is a critical factor in digital commerce platforms because it influences users' ability to find product information and complete transactions efficiently. This study evaluates the usability of Oisrum, an MSME digital commerce platform, and identifies priorities for interface improvement based on actual user-testing results. The evaluation involved 10 participants performing six predefined tasks covering product discovery, access to product information, product selection, cart interaction, checkout, and access to platform information. The results showed an overall task completion rate of 93.33%, with 56 successful task executions out of 60, and a System Usability Scale (SUS) score of 83.0. Task-level analysis identified access to product information (T2), with a completion rate of 90%, and checkout completion (T5), with a completion rate of 80% and an average completion time of 148 seconds, as areas requiring further attention. These findings demonstrate that overall usability scores should be interpreted alongside task-level performance to identify specific interaction problems. A weighted objective-function approach may complement this evaluation by supporting the prioritization of interface improvement alternatives based on measurable usability indicators. However, the effectiveness of specific improvements must be established through documented implementation and follow-up user testing. This study provides an empirical basis for identifying usability issues and prioritizing further improvements to the Oisrum digital commerce platform.

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1. INTRODUCTION

Digital transformation is a crucial aspect in the development of Micro, Small, and Medium Enterprises (MSMEs). The use of digital technology is not only related to the availability of marketing media, but also to the ability of MSMEs to provide user-friendly digital experiences tailored to customer needs. Digitalization can support the improvement of MSME business capabilities if the technology used is tailored to the needs of the organization and users (Coco et al., 2024).

In digital platform development, User Interface (UI) and User Experience (UX) are crucial aspects because they determine how users perceive information, navigate, and complete activities within the system. UI/UX design that does not align with user needs can lead to navigation difficulties, increase interaction load, and degrade the user experience. Therefore, UI/UX development needs to be carried out through an approach that places users at the heart of design decision-making (Dewi et al., 2022),(Hutabarat & Sudaryana, 2024).

One widely used approach to developing user-needs-based solutions is Design Thinking. This approach uses the stages of empathize, define, ideate, prototype, and test to understand user problems, formulate the problem, generate alternative solutions, build prototypes, and test those solutions. The application of Design Thinking to the development of digital systems for MSMEs has been used to produce UI/UX designs that better align with user needs (Oktafamerio et al., 2024; (Oktaviani, 2023), (Oktafamerio et al., 2024)

Previous research has shown that integrating Design Thinking with usability evaluation can result in measurable improvements (Hidayat et al., 2022), for example, demonstrated improved usability after a redesign using Design Thinking. In a UI/UX study of an MSME screen printing sales application, (Dwanty, Ayu, & Apriyanti, 2026) achieved a SUS score of 87.7 after testing the design with users. Other research on online shop applications also shows that Design Thinking can be used to produce UI/UX designs that can be evaluated using the SUS (Rantung & Mambu, 2023). Recent studies also show that the Design Thinking approach remains relevant in the development and evaluation of user-needs-based digital interfaces (Soraya, 2025).

Although research on UI/UX and Design Thinking has grown, some research still focuses on UI/UX design or evaluation of a single platform, while the integration of partner needs identification, Design Thinking, UI/UX design, prototype development, usability testing, evaluation, refinement, and validation in the context of MSMEs still needs to be strengthened. In the context of MSMEs, research also produces more interface designs or prototypes as output, while integrative process models that connect business needs, user needs, design, testing, and validation are still relatively limited (Rizkyani et al., 2025), (Rukhviyanti et al., 2025).

In the context of Oisrum MSME, Shopee and Instagram are already used as digital marketing and sales channels. However, product information and customer interactions remain distributed across different platforms. This context provides an empirical setting for applying and evaluating an integrated UI/UX and Design Thinking model. The case is used to examine the model's applicability in translating business and user requirements into a structured digital platform, rather than treating the prototype itself as the sole research contribution (Rohmah & Irawan, 2026), (Sudibyo, 2022).

Accordingly, this study aims to develop an integrated UI/UX and Design Thinking model for MSME digital platform development. The contribution consists of three aspects: (1) a structured integration of user-needs identification, Design Thinking, and UI/UX development; (2) an iterative evaluation mechanism that uses task completion, user observations, user responses, and the System Usability Scale (SUS) to guide refinement; and (3) an empirical demonstration of how usability evidence can inform improvements to the development process. The resulting model is intended to provide a systematic and potentially transferable approach for developing user-centered digital platforms in MSME contexts, while its broader applicability requires evaluation across additional enterprises and settings.

2. RESEARCH METHOD

The research used a Research and Development (R&D) approach integrated with Design Thinking and UI/UX. This integration was used to connect the identification of MSME needs with the process of designing, developing, testing, and validating prototypes. The Design Thinking approach was used because it allows for an iterative development process based on an understanding of users and identified problems (Djamaris, 2023), (Wibowo et al., 2025).

Research Integration Model

The research integration model consists of a series:

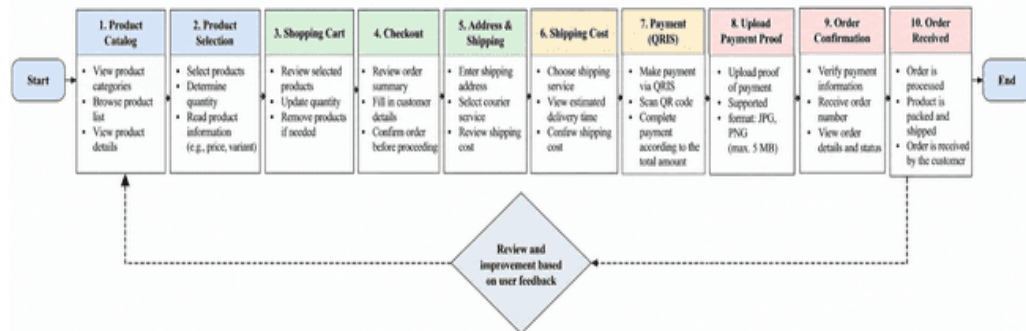


Figure 1. Research stages

In the empathize stage, data is collected through observation and interviews to understand user needs, business needs, interaction issues, and information needs. The define stage is used to formulate the main problem based on field findings. Next, the ideate stage is used to generate alternative solutions that are then translated into information structures, user flows, wireframes, and interface designs. This approach aligns with the application of Design Thinking in UI/UX research for MSMEs, which uses understanding user needs as the basis for designing digital solutions (Sajiwo et al., 2025),(AAAW Putra & Rada, 2025).

Prototype Development

The prototype was developed based on the UI/UX design results. The platform has two main functions: information and transaction. Information functions include Home; Products; About Us; Cultivation; and Contact. Transaction functions include:



Figure 2. Prototype development flow

Prototypes are used as interactive representations so that users can run activity scenarios as if they were using the actual platform.

Usability Testing

Testing was conducted on 10 respondents using six tasks that represent the main user activities.

Table 1. Main user activity tasks

Code	Task
T1	Find Oisrum products
T2	Access product information
T3	Selecting a product
T4	Add product to cart
T5	Complete the ordering process
T6	Find information about Oisrum

Data is collected through task completion, usage observations, user responses, and the System Usability Scale (SUS). Task completion is used to determine user success in completing tasks, while observations are used to record time, errors, and assistance needs. Task-based testing and SUS are widely used approaches in UI/UX usability evaluation (Sajiwo et al., 2025)

The task success rate is calculated by:

$$TC = \frac{\text{Jumlah task berhasil}}{\text{Total task}} \times 100\%$$

The SUS is used to obtain quantitative measures of usability through 10 statements on a five-level scale. The SUS approach is widely used to evaluate the usability of various digital platforms because it produces concise and comparable measures across systems (Wulansari et al., 2023),(Yoshua et al., 2025)

Evaluation and Validation

Task completion results, observations, user responses, and the SUS were analyzed together to determine which parts of the prototype needed improvement. The evaluation considered success rates, completion times, errors, assistance needs, navigation, user responses, and business needs. The resulting prototype is then validated based on feature suitability, operational flow, information, ease of use, interface quality, user needs, and implementation readiness.

3. RESULTS AND DISCUSSIONS

The results and discussion present the usability findings obtained from testing the Oisrum digital commerce platform and examine their implications for interface improvement. The analysis combines overall usability performance with task-level results to identify areas that require further attention. The evaluation involved 10 participants performing six predefined tasks, producing 60 task executions. The overall task completion rate was 93.33%, and the SUS score was 83.0. Although these results indicate positive overall usability performance, differences across individual tasks reveal specific interaction challenges. The following sections discuss the initial needs of Oisrum MSMEs, the implementation of the UI/UX and Design Thinking integration model, and the implications of the usability findings for further platform improvement.

Initial Conditions and Needs of Oisrum MSMEs

This finding supports previous research which shows that user needs need to be the basis for developing MSME digital platforms (Zhukhruffa, 2023). Research also shows that Design Thinking can be used to produce UI/UX designs for MSME sales applications that are more suited to user needs.

The initial assessment identified Shopee and Instagram as digital channels used by Oisrum to support its business activities. Although these channels provide opportunities to promote products and reach customers, the development of a dedicated digital commerce platform requires an information structure and interaction flow that address users' needs. The initial needs identified in this study included a more structured presentation of product information, easier access to product details, simplified interactions, a clear product catalog, and a more focused transaction flow.

These needs informed the development of the Oisrum digital commerce platform through the integration of User Interface (UI), User Experience (UX), and Design Thinking. Rather than focusing solely on visual appearance, the development process considered how users discover products, understand product information, select items, manage their cart, and complete transactions. This approach connects the initial identification of business and user needs with the subsequent design, prototyping, and usability evaluation stages.

The relevance of these needs was further examined through task-based usability testing involving 10 participants who completed six predefined tasks. The evaluation produced an overall task completion rate of 93.33% and a System Usability Scale (SUS) score of 83.0. However, the task-level results revealed differences in user performance. Access to product information (T2) achieved a completion rate of 90%, while checkout completion (T5) achieved a completion rate of

80%. These findings indicate that product information access and the checkout process remain areas requiring further attention, despite the positive overall usability results.

The initial assessment and usability findings therefore provided complementary evidence for guiding the development and evaluation of the Oisrum platform. The initial assessment established the business and user needs, while the task-based evaluation identified specific interactions that warrant further investigation and refinement. These findings served as the basis for the subsequent discussion of the UI/UX and Design Thinking integration model and the identification of potential improvements to the platform.

Implementation of UI/UX and Design Thinking Integration Model

The UI/UX and Design Thinking integration model translates identified user needs into a structured platform-development process. The empathize phase provides an understanding of user needs, which informs the define phase and the formulation of design problems. During the ideate phase, potential solutions are developed and translated into information architecture, user flows, wireframes, and an interactive prototype. The testing phase provides user feedback and performance measurements that can be used to identify usability issues and guide subsequent refinement. In the Oisrum study, the task-based evaluation identified access to product information (T2) and checkout completion (T5) as areas requiring further attention. These findings can therefore inform the refinement of the relevant interface components. The model provides a systematic connection between user needs, interface design, prototyping, and usability evaluation. Any claim that the resulting changes improve usability, however, should be supported by documented changes and comparative user-testing results.

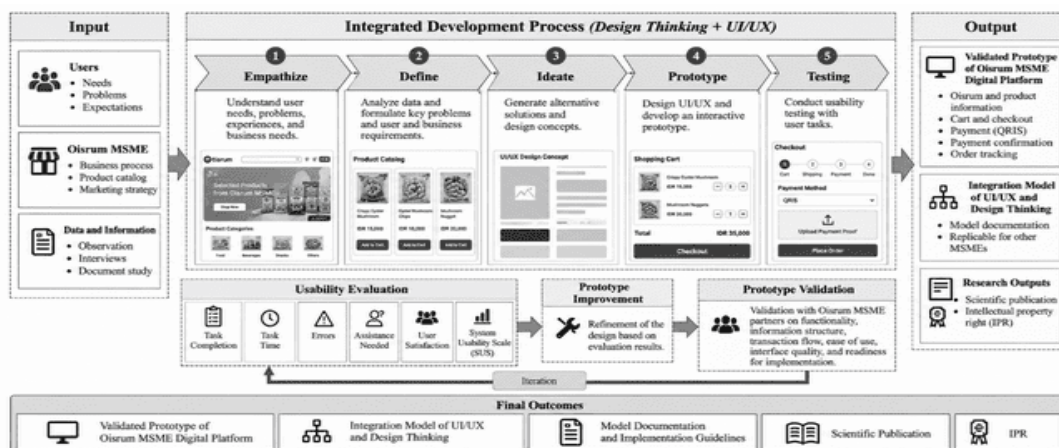


Figure 3. UI/UX and design thinking integration model for optimizing the oisrum msme digital platform

Beyond task completion and usability scores, understanding how users perceive digital services can provide additional insight into the aspects of an interface that require refinement. An interpretable analysis of user perceptions can help identify factors associated with users' evaluations of digital services and provide complementary evidence for prioritizing design improvements. Prototypes are then tested so that usability results can be reused as input for refinement. This iterative pattern is also found in Design Thinking-based UI/UX research, where test results are used as the basis for redesign and usability improvements (Hidayat et al., 2022; Akbar & Hanif, 2025).

Task Completion Results

Table 2. Usability testing task completion

Task	Succeed	Not successful	Success
T1	10	0	100%
T2	9	1	90%
T3	10	0	100%
T4	10	0	100%

Task	Succeed	Not successful	Success
T5	8	2	80%
T6	9	1	90%
Total	56	4	93.33%

The test results showed an overall success rate of 93.33%. T1, T3, and T4 achieved a 100% success rate, indicating that users found it relatively easy to find, select, and add products to their cart. T2 achieved a 90% success rate, indicating that some users still experience difficulties obtaining product information. This finding indicates that the information presentation structure still needs improvement. T5 achieved the lowest success rate, at 80%. Two respondents were unable to complete the ordering process. These results indicate that the transaction process is the most critical part of the prototype.

These results are in line with previous UI/UX research on MSMEs which shows that task testing can identify parts of the interaction that still need improvement even though the prototype can generally be used (Prayogi & Setiyawati, 2024).

Observation Results

Table 2. Usability testing observation results

Task	Time	Error	Help
T1	42 seconds	1	1
T2	48 seconds	2	1
T3	35 seconds	1	0
T4	28 seconds	0	0
T5	148 seconds	3	2
T6	39 seconds	1	1

T5 had the longest completion time, at 148 seconds, and resulted in three errors and two assistance needs. This finding reinforces the task completion results, which suggest that the transaction flow is the most complex. In contrast, T4 only took an average of 28 seconds and resulted in no errors or assistance needs. This indicates that the cart flow provided a relatively simple interaction experience. Therefore, using observations alongside task completion provides more specific information about the location of user barriers than perceptual measures alone. This combined evaluation approach is relevant in usability research because it can identify both interaction issues and user perceptions of the system (A. Putra et al., 2025).

User Response and SUS

Table 3. User responses

Aspect	Score
Ease of navigation	4.3
Find products	4.2
Clarity of product information	4.1
Product selection	4.4
Use of basket	4.5
Checkout and shipping	4.0
QRIS Payment	4.2
Oisrum Information	4.2
Interface view	4.4
Average	4.26

The average user response of 4.26/5 indicates a positive perception of the prototype. The highest score was for cart usage at 4.5, while the lowest score was for checkout and shipping at 4.0. These results are consistent with task completion and observations. The cart performed very well, while the checkout process was the area that needed the most attention.

Table 4. System usability scale results

Respondents	SUS
R1	80
R2	82.5
R3	85
R4	80

Respondents	SUS
R5	87.5
R6	82.5
R7	85
R8	80
R9	85
R10	82.5
Average	83

A SUS score of 83.0 indicates good prototype usability. This score is also consistent with the results of several Design Thinking-based UI/UX studies. For example, an MSME sales application obtained an SUS of 87.7, while (Saddyah & Saragih, 2024) obtained a SUS score of 82 on the delivery application prototype. However, a good SUS score doesn't necessarily mean the entire system is problem-free. In this study, T5 still achieved 80% success despite a SUS score of 83.0. This demonstrates the importance of using multiple usability indicators simultaneously.

Evaluation and Improvement

Based on the triangulation of test results, there are two priorities for improvement.

Table 5. Triangulation of test results

Findings	Proof	Improvement
Product information still needs to be clarified	T2 = 90%; 2 errors; information score 4.1	Information layout and navigation are clarified
The transaction flow is relatively complex	T5 = 80%; 148 seconds; 3 errors; 2 assists	Checkout and shipping flow simplified
Easy to use basket	T4 = 100%; 0 errors; 0 help	Structure maintained

This approach suggests that improvements are not made across the board, but rather focused on components that have proven problems. This aligns with the characteristics of Design Thinking, which allows solutions to be developed iteratively based on user feedback (Zazhemi & Marcos, 2025).

The usability evaluation of the Oisrum prototype recorded a task completion rate of 93.33%, corresponding to 56 successful executions out of 60 task executions, and a SUS score of 83.0. Examination of individual tasks provided additional insight into user performance. Task T2, which involved accessing product information, achieved a completion rate of 90%, while Task T5, which involved completing the checkout process, achieved a completion rate of 80% and an average completion time of 148 seconds. These findings indicate that aggregate usability measures alone are insufficient to identify all areas requiring interface refinement. Task-level results provide more specific evidence for determining where further investigation and design improvements should be directed. The findings should be interpreted as results of the reported user evaluation. They do not, by themselves, demonstrate that subsequent interface changes have improved usability.

Final Model and Research Contribution

The final results of the research show that the developed integration model can be formulated as:

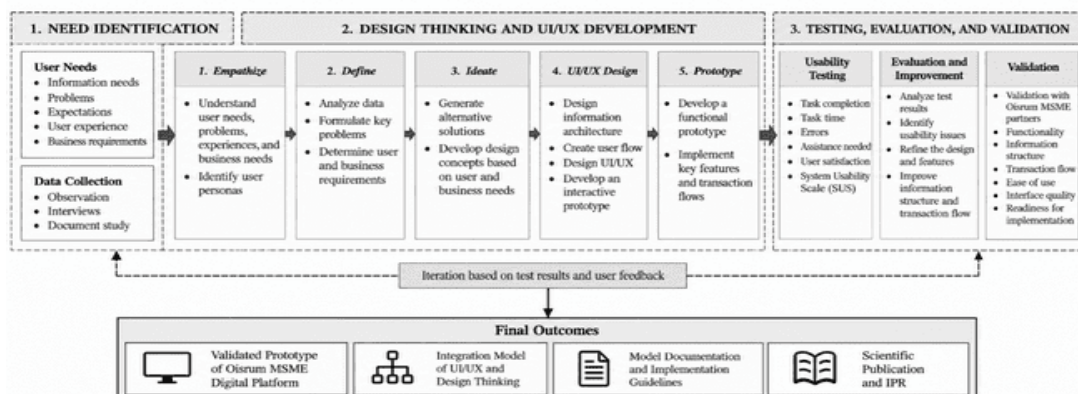


Figure 4. UI/UX and design thinking integration model for optimizing the oisrum msme digital platform

This model produces a prototype with two main functions: information media and digital transaction media. The research's contribution lies in integrating these processes within the context of MSMEs. The research goes beyond UI/UX design creation, but connects business and user needs through prototyping, empirical testing, evaluation, refinement, and validation. This distinguishes it from research that focuses solely on interface design or usability measurement.

Discussions

The findings demonstrate the value of combining overall usability measures with task-level performance when evaluating an MSME digital commerce platform. Although Oisrum achieved a task completion rate of 93.33% and a SUS score of 83.0, the lower completion rate for checkout completion (T5) and the time required to complete this task indicate that specific interaction flows may still require attention. Access to product information (T2) also showed room for improvement, with a completion rate of 90%. These findings provide a practical basis for identifying areas that warrant further investigation and prioritizing interface refinement. A weighted objective-function approach may complement task-based testing by comparing improvement alternatives using measurable indicators, provided that the underlying observations and calculation procedures are documented (Riandari & Sihotang, 2025; Riandari & Zain, 2026). Nevertheless, the initial evaluation and the ranking of candidate alternatives should be distinguished from evidence of improvement after implementation. Confirming the effectiveness of an interface change requires a follow-up user evaluation using comparable tasks and clearly defined measurement procedures.

4. CONCLUSION

This study evaluated the usability of the Oisrum digital commerce platform and identified areas requiring further interface improvement. Testing involving 10 participants across six tasks produced an overall task completion rate of 93.33% and a SUS score of 83.0. Task-level analysis identified access to product information (T2), with a completion rate of 90%, and checkout completion (T5), with a completion rate of 80% and an average completion time of 148 seconds, as areas requiring further attention. These findings demonstrate the importance of examining task-level performance alongside aggregate usability measures. The results provide an empirical basis for guiding further refinement of the Oisrum interface. A weighted objective-function approach may support the prioritization of improvement alternatives when the necessary performance data and calculation procedures are available and verifiable. However, the effectiveness of implemented changes cannot be established from the initial evaluation alone. Future work should conduct follow-up usability testing to determine whether the selected improvements lead to measurable changes in task completion, efficiency, errors, and perceived usability.

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