

Analysis UX Design e-Commerce "Key Kaos" with Lean UX

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ABSTRACT

Keywords

UX Design, e-commerce, Lean UX, marketplaces

This research explores the evaluation of User Experience (UX) design at the Key Kaos online store using the Lean UX approach. Key Kaos online store required user-centered design to increase customer satisfaction and drive engagement. This study integrates Lean UX principles to simplify the design process, encourage collaboration, and rapid iteration. The research methodology includes a combination of user feedback, usability testing, and iterative prototyping, which aligns with the Lean UX framework. Through this iterative process, this research aims to identify key weak points and areas of improvement in the existing UX design of the Key Kaos online store. These findings are expected to provide valuable insights in increasing user satisfaction, improving usability, and optimizing the overall user journey in the market. Additionally, this research explores the impact of Lean UX on cross-functional collaboration, aiming to identify how Lean UX facilitates communication and collaboration between designers, developers and other stakeholders. By assessing the effectiveness of Lean UX in the context of Key Kaos, this research contributes to a broader understanding of its application in the market environment. The expected outcomes of this research include actionable recommendations to improve the UX design of Key Kaos online stores, ultimately contributing to market success by creating a more user-friendly and efficient platform. Additionally, research insights regarding the application of Lean UX principles can inform future efforts in marketplace UX design, offering a valuable reference for designers and researchers looking to optimize user experiences in online marketplaces.

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1. Introduction

In the dynamic landscape of e-commerce, user experience (UX) plays a pivotal role in determining the success of an online store. As consumers increasingly turn to online platforms for their shopping needs, the importance of creating seamless and intuitive digital experiences cannot be overstated[1]. This research endeavors to explore and evaluate the UX design of the online store "Key Kaos" through the lens of Lean UX methodology.

The Lean UX approach, derived from Lean and Agile methodologies, emphasizes collaboration, rapid iteration, and a focus on user feedback throughout the design process[2][3]. By applying Lean UX principles to the analysis of the Key Kaos online store, this research aims to uncover insights that can enhance the overall user experience and contribute to the optimization of the digital shopping journey.



The Key Kaos online store, known for its diverse range of products and customer-centric approach, serves as a compelling case study for investigating the application of Lean UX in the context of e-commerce. This research seeks to identify strengths, weaknesses, and opportunities for improvement within the current UX design of Key Kaos, ultimately providing actionable recommendations for enhancing the online shopping experience.

Through a combination of user interviews, usability testing, and heuristic evaluations, this study aims to gain a comprehensive understanding of user interactions, pain points, and preferences within the Key Kaos online environment[4]. The findings will be analyzed in the context of Lean UX principles, such as cross-functional collaboration, minimal viable product (MVP) development, and continuous feedback loops, to derive insights that can inform iterative improvements in the UX design[5].

As the digital marketplace continues to evolve, staying attuned to user needs and expectations is imperative for online retailers. This research aspires to contribute valuable insights to the broader discourse on effective UX design in e-commerce, with specific relevance to the application of Lean UX principles in optimizing the Key Kaos online store. Ultimately, the goal is to foster a user-centric design approach that aligns with the ever-changing demands and expectations of online consumers.

2. Method

2.1. Software development methodology Usei Using Lean UX

This research aims to conduct an in-depth analysis of user experience design on the "Key Kaos" e-commerce platform by applying the stages of the Lean UX method, as show in figure 1[3][6][7]. First of all, this research will detail the scope of the analysis by identifying specific aspects of the user experience, target user segmentation and key user journeys within the platform. Next, the method will include developing detailed user personas, covering various user demographics and behaviors to understand each persona's characteristics, goals, and pain points[8].

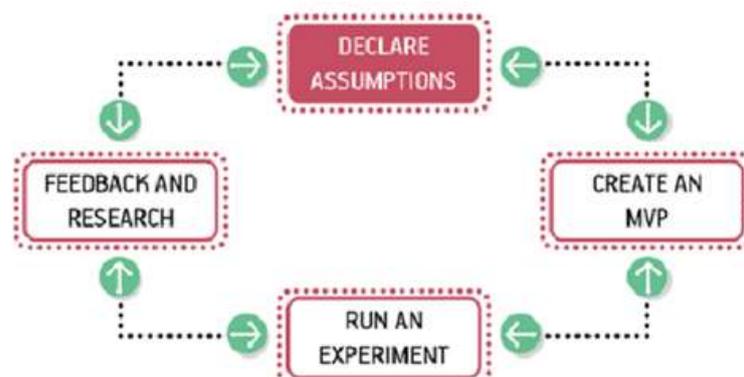


Fig. 1. The stages of the Lean UX method

This research will involve mapping key user journeys on "Key Kaos" for the selected personas. This mapping will highlight the touch points, interactions, and potential pain points in each user journey. Next, a collaborative design workshop will be held involving cross-functional team members, such as designers, developers and product managers[9]. Design thinking techniques will be used to generate ideas and solutions to previously identified pain points and areas of improvement[3].

This analysis will also involve an assessment of the current features and functionality of "Key Kaos" with the goal of identifying the core elements that provide value to users. Consideration will be given to the extent to which the platform follows Lean UX principles in Minimum Viable Product (MVP) delivery[10][7].

Next, the research will involve creating low-quality prototypes for specific features or user flows identified in collaborative design workshops. Rapid testing will be conducted with real users to gather feedback on the proposed changes[9]. Regular usability testing sessions will also be scheduled with actual users to ensure ongoing feedback on current designs and prototype iterations.

This research will also include the use of the Lean Canvas to detail unique value propositions, customer segments, and "Key Kaos" distribution channels[7]. Next, the research will involve

forming hypotheses regarding design decisions or improvements identified during collaborative design workshops, with plans for testing the hypotheses through iterative design changes, as show in figure 2.

In all stages of research, real-time collaboration tools such as software for wireframing, prototyping, and project management will be utilized to facilitate communication and documentation between teams. Finally, this research will implement the Build-Measure-Learn cycle, allowing for continuous iteration of design changes based on user feedback and analysis of key data. Cross-functional teams will continue to synergize, ensuring that shared responsibility and collaboration between designers, developers, and product managers is maintained.

The image shows the Lean UX Canvas (v2) template, which is a 3x3 grid of boxes. Each box contains a number from 1 to 8, representing the stages of the method. The boxes are arranged as follows:

1 Business Problem What problem does the customer face that you are trying to solve? What problem does the customer face that you are trying to solve? What problem does the customer face that you are trying to solve? What problem does the customer face that you are trying to solve?	5 Solutions What are the solutions that will solve our business problem and meet the needs of our customers at the same time? List product features or enhancements that solve both.	2 Business Outcomes What will you build to measure the customer problem? What will you measure? What will you build to measure the customer problem? What will you measure? What will you build to measure the customer problem? What will you measure?
3 Users What users (i.e., segments of users and customers) should you focus on first? What users (i.e., segments of users and customers) should you focus on first? What users (i.e., segments of users and customers) should you focus on first?	4 User Outcomes & Benefits What user outcomes and benefits are you looking for? What benefit would they gain from using it? What behavior change can we measure that tells us they've achieved their goal? What user outcomes and benefits are you looking for? What benefit would they gain from using it? What behavior change can we measure that tells us they've achieved their goal?	6 Hypotheses Combine the assumptions from 1, 2, & 4 & 5 into the following hypotheses statement: We believe that [Business Outcome] will be achieved if [User Segment] will [Behavior] when they [Hypothesis] (under these or other conditions).
7 What's the most important thing we need to learn first? What are the assumptions that are most likely to be wrong? What are the assumptions that are most likely to be wrong? What are the assumptions that are most likely to be wrong?	8 What's the least amount of work we need to do to learn the next most important thing? What experiments can we run to test our assumptions? What experiments can we run to test our assumptions? What experiments can we run to test our assumptions?	

Fig. 2. The stages of the Lean UX Method 3rd edition

The findings from each analysis phase will be compiled into a comprehensive report, including implementable recommendations for design improvements, a prioritized schedule for implementation, and a summary of key learnings from this Lean UX analysis[7]. With this approach, it is hoped that continuous improvement can be achieved on the "Key Kaos" e-commerce platform based on user feedback and business goals.

2.2. Sistem Usability Scale

In this research, the Usability Scale (SUS) System will be used as a measurement tool to evaluate the level of usability of user experience design on the "Key Kaos" e-commerce platform. SUS is a tool that has been proven to be widely used in the context of user experience and user interaction, especially in measuring user perceptions of the level of usability of a system[1] [11].

This research will implement SUS to measure the level of satisfaction and usability from the user's perspective on "Key Kaos". Research participants will be given the SUS questionnaire after their interaction with the e-commerce platform. The SUS questionnaire consists of a number of statements that are rated by respondents on a Likert scale, which ranges from strongly agree to strongly disagree.

The statements in the SUS questionnaire will be designed to measure the extent to which users believe that the "Key Kaos" platform is easy to use, has an appropriate level of complexity, and provides a satisfactory experience. Additionally, SUS questions will be formulated to evaluate the extent to which users feel confident in using key features and navigating through the site[12][1].

The SUS score results will be analyzed quantitatively to get a general idea of the level of platform usability. A high score will indicate that users found the platform easy to use and satisfying, while a low score may indicate potential improvements to certain aspects of the user experience design, as show in figure 3[1][13].

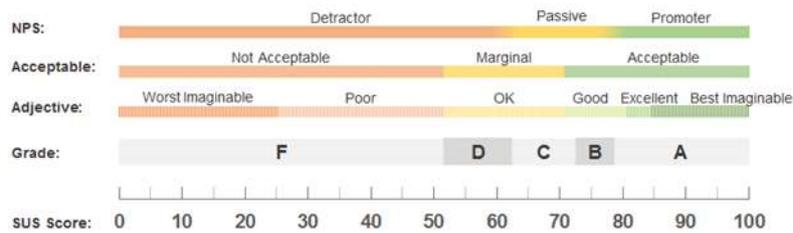


Fig. 3. Score of System usability scale (SUS)

Table 1 represents Figure 2 of the SUS rating scale for measuring UI/UX with low, medium, and high perceived usability[1].

Table 1. Curve Grading Scale SUS

Grade	SUS	Max-Min SUS	Percentile Range
A+	84.1 - 100	15.9	96 - 100
A	80.8 - 84.0	3.2	90 - 95
A-	78.9 - 80.7	1.8	85 - 89
B+	77.2 - 78.8	1.6	80 - 84
B	74.1 - 77.1	3	70 - 79
B-	72.6 - 74.0	1.4	65 - 69
C+	71.1 - 72.5	1.4	60 - 64
C	65.0 - 71.0	6	41 - 59
C-	62.7 - 64.9	2.2	35 - 40
D	51.7 - 62.6	10.9	15 - 34
F	0 - 51.6	51.6	0 - 14

This method will provide more specific and measurable insight into the level of usability of "Key Kaos" according to user perception, which can further complement the results of the Lean UX methods applied. Thus, the combination of the Lean UX approach and the use of SUS is expected to provide a holistic and in-depth picture of user experience design on the "Key Kaos" e-commerce platform.

3. Results and Discussion

3.1. Observation and Literature Study

The contemporary digital landscape has witnessed a paradigm shift in consumer behavior, with online shopping becoming an integral aspect of modern commerce. In this context, the user experience (UX) of online stores holds significant importance, influencing user satisfaction, retention, and overall business success. This observational and literature study focuses on comprehensively analyzing the UX design of the online store "Key Kaos" by employing Lean UX methodology.

As we delve into the observation phase, it is essential to recognize the intricate interplay between design elements, user interactions, and the overall journey of online shoppers on the Key Kaos platform. Through firsthand observation and exploration of the website, specific attention will be paid to the intuitiveness of navigation, visual aesthetics, ease of product discovery, and the overall user journey. Any friction points, bottlenecks, or notable positive experiences will be documented to form a foundational understanding of the current UX landscape.

To contextualize the observation within a broader theoretical framework, a thorough literature study will be conducted. This study will encompass key principles of UX design, Lean UX methodology, and relevant e-commerce trends. Literature sources will include academic journals, books, articles, and reputable online platforms that contribute to the discourse on user-centered design, Lean methodologies, and e-commerce UX best practices.

The examination of UX design principles will involve an exploration of user interface (UI) design, information architecture, and the psychological aspects of user behavior. Drawing on Lean UX literature, the study will delve into the principles of collaboration, rapid iteration, and continuous user feedback as applied to the design process. Additionally, the literature review will explore successful case studies and best practices within the realm of online retail UX, shedding light on strategies that have proven effective in enhancing the overall digital shopping experience.

By synthesizing observational insights with the theoretical underpinnings provided by the literature study, this research aims to offer a comprehensive analysis of the UX design of the Key Kaos online store through the lens of Lean UX methodology. The integration of firsthand observations and theoretical frameworks is expected to provide a nuanced understanding of the current state of Key Kaos's UX and lay the foundation for actionable recommendations that align with Lean UX principles, ultimately contributing to the optimization of the online shopping experience for Key Kaos customers.

3.2. Declare Assumption

Several foundational assumptions are made to guide the investigation and analysis of the online store's user experience (UX) design. These assumptions provide a framework for the study and shape the initial hypotheses that will be explored throughout the research process:

- a. **User-Centric Design Philosophy:** It is assumed that the Key Kaos online store is developed with a user-centric design philosophy, aiming to prioritize and address the needs, preferences, and expectations of its diverse user base. This assumption sets the stage for evaluating the extent to which the UX design aligns with the principles of user-centered design.
- b. **Implementation of Lean UX Principles:** The research assumes that Lean UX principles have been incorporated into the design and development processes of the Key Kaos online store. This includes assumptions about continuous collaboration, iterative design, and a strong emphasis on user feedback throughout the product development life cycle. The investigation will focus on identifying evidence of Lean UX practices in the design and improvement of the online store.
- c. **Digital Shopping Journey Complexity:** It is assumed that the digital shopping journey on Key Kaos involves a multifaceted user experience, incorporating various touchpoints such as product discovery, navigation, checkout, and post-purchase interactions. The research assumes that complexities and challenges may exist within this journey, motivating the application of Lean UX methodology to streamline and optimize the overall experience.
- d. **Diverse User Demographics:** The research assumes that Key Kaos caters to a diverse demographic of online shoppers. This assumption is crucial for understanding the varied user personas and preferences, allowing for a nuanced analysis of how different user segments interact with and perceive the online store's UX design.
- e. **Impact of Design Iterations:** It is assumed that the Key Kaos online store undergoes design iterations and updates over time. This assumption forms the basis for assessing the impact of past design changes on the overall UX and understanding how the implementation of Lean UX principles contributes to continuous improvement.

3.3. Create Minimum Viabe Product (Activity Diagram)

The Activity Diagram for "UX Design Analysis of Online Store 'Key Kaos' with Lean UX Methodology" involves outlining the important steps and interactions involved in the Minimum Viable Product (MVP) development process. The Lean UX methodology emphasizes rapid iteration and collaboration, making Activity Diagrams a useful tool for visualizing workflows as in figure 4.



Fig. 4. Activity Diagram

Explanation:

- a. Identify Research Objectives: Define the specific goals and objectives of the research, outlining what aspects of the UX design will be analyzed.
- b. Literature Review and Observational Study: Conduct a comprehensive literature review and an observational study to understand existing UX principles and gather insights into the current state of Key Kaos.
- c. Synthesize Findings and Form Hypotheses: Analyze the data from the literature review and observational study, synthesizing findings and forming hypotheses about potential UX improvements.
- d. Plan and Conduct Usability Testing: Develop a plan for usability testing based on the identified hypotheses. Conduct usability tests to gather real user feedback.
- e. Analyze Test Results and Iterate: Analyze the results of usability testing, identify areas for improvement, and iterate on the UX design. This involves refining prototypes and making necessary adjustments.
- f. Define MVP Objectives and Scope: Clearly define the objectives and scope of the Minimum Viable Product (MVP) based on the iterative improvements identified through usability testing.
- g. Collaborate with Cross-functional Team for Ideation: Engage with a cross-functional team to brainstorm ideas and collaborate on the development of MVP features.
- h. Develop Prototypes (Wireframes, Mockups): Create low-fidelity and high-fidelity prototypes based on the defined MVP features.
- i. Implement Prototypes for MVP: Develop and implement the selected features to create the Minimum Viable Product.
- j. Collect User Feedback and Iterate: Release the MVP to users, collect feedback, and iterate on the design based on real user interactions and preferences.

3.3.1. Low Fidelity (wireframe)

The stage is the initial stage of creating user interface. The wireframe is designed using standard sizes for mobile app design. Although it is only a rough idea, it can be used to determine the layout before proceeding to high-fidelity design. Before proceeding to the visual mockup stage, the wireframe stage is a plan or framework that can offer a low-fidelity overview of each page displayed in application. In figure 4, We draw a wireframe for several pages that will become the UX Design for the Online Store "Key Kaos".

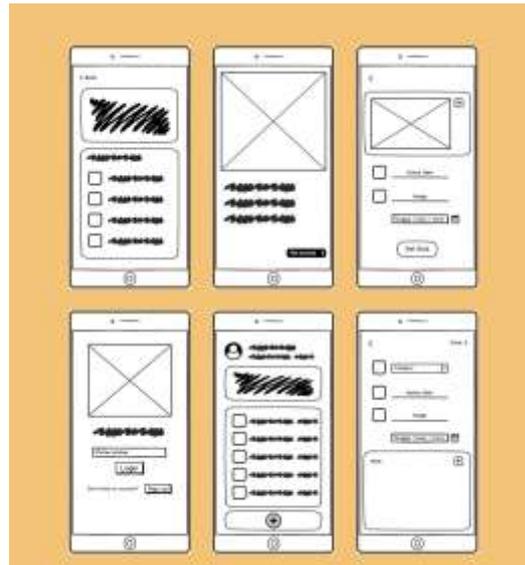


Fig. 4. Low Fidelity (wireframe)

3.3.2. High Fidelity (Prototyping)

At this prototype stage is the embodiment, coloring, and settings of user interface elements from previously created wireframe. Even though the wireframe initial design prototype, prototype not always exactly the same as the wireframe because of that caused by several factors, including getting input from experts in the field and input from shop owners. In figure 5, We draw a Prototyping for several pages that will become the UX Design for the Online Store "Key Kaos".

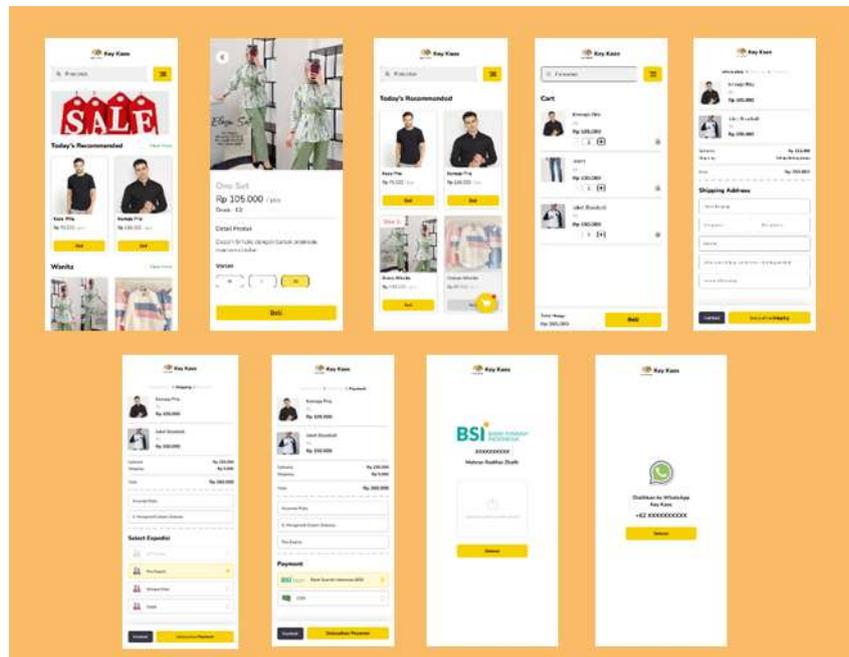


Fig. 5. High Fidelity (Prototyping)

3.3.3. Experience Maps

The experience map in the Figure 6 can help you understand how users interact with “Key Kaos” ecommerce from start to finish, helping to identify areas that need more attention in a Lean UX analysis.

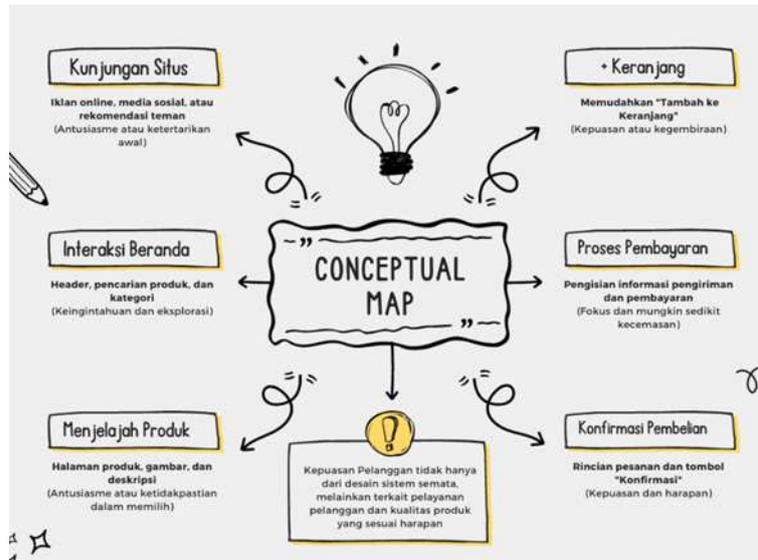


Fig. 6. Experience Map

3.3.4. Run and Experience

The experimental stage was carried out to determine prototype flow created previously at the MVP stage. Testing at this stage is carried out independently and target users. testing is very helpful if it finds errors in the user interface of the prototype flow, typography, design, and visual design before testing target users. testing is carried out simultaneously with the MVP (Minimum Viable Product) designed in such a way that prototyping runs optimally. Tests are conducted on target users using questionnaires that conduct these experiments, and testing researchers will get feedback on the prototype design which will be processed in the feedback and research phase, which will later help improve the user interface.

3.3.5. Feedback and Research

System Usability Scale, When SUS is used, 20 respondents were asked to rate the following 10 items with one in five responses adopted from the standard SUS rating scale template for measuring UI/UX with low, medium, and high perceived usability.

Table. 2 System Usability Scale Statements

No	SUS Statement
1	Give a score for the level of clarity of product information, descriptions and images in "Key Kaos". (0 = Not Clear, 100 = Very Clear)
2	To what extent does the "Key Kaos" site meet your expectations in terms of online shopping experience? (0 = Does not meet, 100 = Completely meets)
3	On a scale of 0-100, how easy was it for you to navigate the "Key Kaos" site? (0 = Very Difficult, 100 = Very Easy)
4	Please rate the usability of the search feature on the "Key Kaos" site. (0 = Not Useful, 100 = Very Useful)
5	To what extent can the checkout process at "Key Kaos" be considered fast and efficient? (0 = Not Efficient, 100 = Very Efficient)
6	On a scale of 0-100, how responsive and fast is the "Key Kaos" site performing? (0 = Very Slow, 100 = Very Fast)
7	Give a score for the general appearance and design of the "Key Kaos" site. (0 = Not Attractive, 100 = Very Attractive)
8	Do you feel that the product information on "Key Kaos" is complete enough and helps you make purchasing decisions? (0 = Not Sufficient, 100 = Very Sufficient)

-
- 9 Are there any particular features in "Key Kaos" that you feel add value and enhance your shopping experience? (0 = No Added Value, 100 = High Added Value)
- 10 How well are Lean UX principles implemented in "Key Kaos"? (0 = Not Good, 100 = Very Good)
-

Calculation results of the SUS equation with the formula (questionnaire one - 1) + (5 - questionnaire two) yes seen in the calculated score in table 3. Average score The final result can be searched using the formula (sum calculated score x 2.5) divided by 20, namely the number of respondents. It can be seen that the final SUS score result is 79.38.

Table 3. SUS Score

Responden	SUS									
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
R1	4	1	5	2	4	2	5	1	1	5
R2	2	5	4	4	5	2	5	1	4	2
R3	5	2	5	2	4	1	5	1	5	1
R4	4	1	5	4	4	2	4	1	5	2
R5	3	1	4	1	4	2	5	1	4	1
R6	5	1	5	1	5	1	4	1	4	1
R7	4	2	5	2	4	2	5	1	5	1
R8	5	2	5	2	5	1	5	2	5	1
R9	5	1	5	1	4	1	4	1	4	1
R10	4	2	4	1	4	1	4	2	4	2
R11	5	1	4	2	5	1	5	1	4	1
R12	5	2	5	2	4	1	4	1	4	2
R13	3	2	4	1	5	1	4	2	4	2
R14	2	2	4	3	5	1	5	2	4	1
R15	2	1	1	2	4	2	3	5	4	1
R16	3	2	3	1	4	1	3	4	4	2
R17	2	2	2	2	4	2	4	4	4	2
R18	3	2	1	1	4	2	3	3	5	1
R19	4	1	3	1	5	1	4	4	4	1
R20	4	3	5	1	4	2	5	2	4	2

Score and Interpretation:

SUS Study Score: 79.38

Median: 80

Standard Dev. 11.18

Adjective: Good

Grade: A

Acceptability: Acceptable

Quartile: 4th

Figure 7 explains the SUS score evaluation for UI/UX that SUS is in the acceptable/best imaginable category and can be promoted to respondents based on the calculation of the results. The SUS results have good usability for users, with the SUS score obtaining 79.38, which is above average and acceptable.

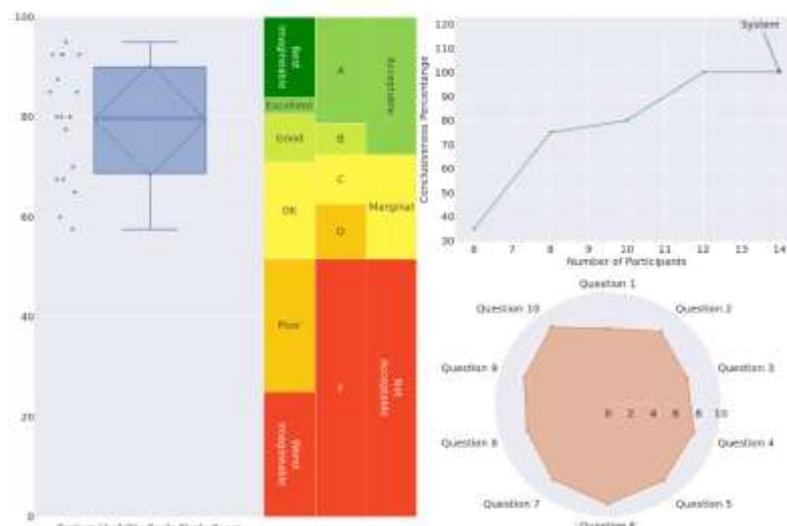


Fig. 7. Evaluation SUS Score

4. Conclusion

By collecting data and analyzing the results of the System Usability Scale (SUS) from 20 respondents, the results of this research show that the level of user satisfaction and usability towards the "Key Kaos" UX design with the implementation of Lean UX is 79.38. This value shows that in general, users have a positive perception of the usability of the system.

Based on the results of research and analysis, it can be concluded that "Key Kaos" with the implementation of Lean UX has achieved a good level of satisfaction and usability. However, implementing small improvements based on recommendations can help improve the user experience and ensure the continued success of UX design in the future. These results provide a foundation for continuous development and data-driven improvements that can support the growth and success of "Key Kaos" in the e-commerce market.

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