Evaluating Usability nnd Customer Satisfaction in E-Marketplaces Using System Usability Scale and Customer Satisfaction Score

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Abstract: In the digital era, user experience (UX) plays a critical role in determining the success of online platforms, particularly in the highly competitive e-commerce industry. This study presents a comparative evaluation of three major e-commerce applications in Indonesia namely Shopee, Tokopedia, and Lazada using two standardized instruments: the System Usability Scale (SUS) and the Customer Satisfaction Score (CSAT). A total of 100 respondents participated in the survey, which included 10 questions mapped to SUS and 10 questions mapped to CSAT. The results revealed that all three platforms scored poorly in usability and customer satisfaction metrics. Shopee achieved the highest SUS score 51, categorized as marginal, while Tokopedia 50 and Lazada 49.55. CSAT scores followed a similar pattern, with Shopee 52%, Tokopedia 55%, and Lazada 50% falling into low or very low satisfaction categories. These findings highlight the need for substantial improvements in both usability and service quality to enhance overall user experience and engagement. This study emphasizes the importance of integrating both SUS and CSAT methods to obtain a holistic understanding of user perceptions.

1. INTRODUCTION

In recent years, assessing user experience (UX) has become increasingly vital, particularly with the proliferation of digital services and applications. Research has prominently utilized two frameworks to gauge user satisfaction: the System Usability Scale (SUS) and Customer Satisfaction Score (CSAT). The SUS, a ten-item questionnaire, is known for its ease of use and effectiveness in measuring perceived usability within various systems and applications [1], [2]. It allows researchers to obtain rapid feedback on product usability, establishing a standardized approach that can be adapted across various contexts [3]. As digital interactions continue to evolve, understanding the nuances of UX through these evaluation methods has also expanded. Recent studies have shown that usability assessments using SUS not only identify user issues but also correlate strongly with overall customer satisfaction metrics such as CSAT [4]. For instance, the evaluation of a mobile banking application, it tells how SUS effectively measured users' learning efficiency and satisfaction, suggesting these factors are critical to enhancing user experience. Another work indicated that SUS serves as a

robust tool for measuring usability perceptions in administrative systems, reinforcing its versatility [5].

The interplay between usability and customer satisfaction has garnered significant academic inquiry. For example, Maramba and Chatterjee explored how SUS scores reflect user interactions in digital health applications, noting that higher usability ratings can lead to enhanced user satisfaction and willingness to engage with services [6]. This is consistent who noted that user satisfaction derived from web usability significantly impacts user loyalty and continuance intention [7]. Such insights underline the importance of incorporating both SUS and CSAT into user experience evaluations to derive holistic conclusions about user engagement. Furthermore, emerging trends in UX research highlight the similarities and distinctions in methodologies. Studies contrasting SUS with alternative usability measures reveal that while SUS is widely applicable and integrates user feedback effectively, combining it with other tools, such as the User Experience Questionnaire (UEQ), provides deeper insights into emotional responses and contextual usability [8]. Some conclusion, leveraging the System Usability Scale in conjunction with Customer Satisfaction evaluations offers a comprehensive framework for understanding user experience. The objective of this study is to present a comparative analysis of two evaluation methods: the System Usability Scale (SUS) and the Customer Satisfaction Score (CSAT). While several existing studies on user experience tend to employ only one of these methods, either SUS or CSAT, this research aims to utilize both in order to provide a more comprehensive understanding of user perceptions. The objects of this study are three prominent e-commerce marketplaces operating in Indonesia, namely Shopee, Tokopedia, and Lazada.

2.   METHODOLOGY

The process begins with creating and sharing a survey instrument. After distribution, the survey responses are gathered and cleaned. Data cleaning helps remove incomplete or inconsistent responses, ensuring accuracy and reliability in subsequent analysis. The validated methodologies such as the System Usability Scale (SUS) and Customer Satisfaction Score (CSAT) are applied to the cleaned data. Findings from SUS and CSAT are then analyzed and compared. This evaluation highlights the strengths and weaknesses of the different e-commerce platforms, enabling a comparative understanding based on survey.
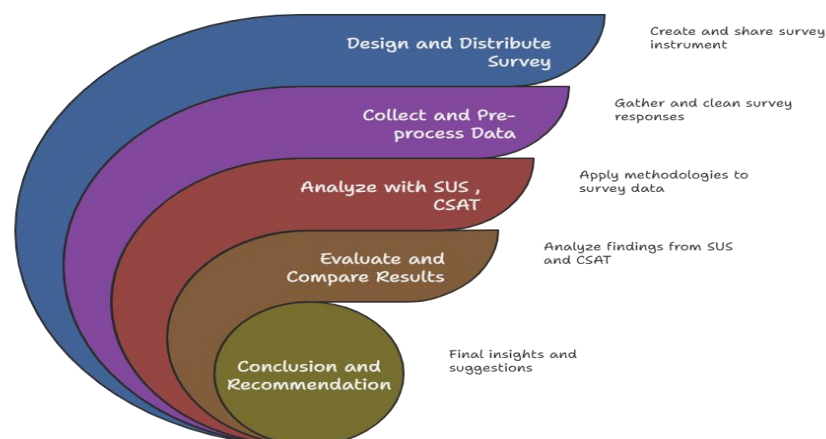
Fig 1. A Layered Diagram Illustrating Survey-Based Evaluation Using SUS and CS

2.1 Design and Distribute Survey

In this phase, developed a structured questionnaire consisting of 10 carefully crafted questions about evaluating user experience across three major e-commerce marketplaces in Indonesia, namely Shopee, Tokopedia, and Lazada, each designed to measure specific aspects of usability and user satisfaction. The survey employed a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), allowing participants to express the intensity of their agreement with each statement[9]. This format was chosen to ensure both quantitative consistency and ease of response. The questions were aligned with established evaluation frameworks such as the System Usability Scale (SUS) and Customer Satisfaction Score (CSAT), ensuring relevance and validity. Once finalized, the survey was distributed to a targeted group of users via online platforms, ensuring broad accessibility and timely response collection [10].

Table 1. UX Evaluation Question

Question ID	Question
Q1	Aplikasi ini sangat mudah digunakan.
Q2	Aplikasi ini memiliki fitur-fitur yang terintegrasi dengan baik.
Q3	Aplikasi ini sangat sesuai dengan kebutuhan saya dan membuat saya percaya diri.
Q4	Penggunaan aplikasi ini tidak membutuhkan banyak bantuan.
Q5	Navigasi dan sistem pencarian sangat mudah dipelajari dan dipahami.
Q6	Saya merasa sangat aman melakukan transaksi diaplikasi ini.
Q7	Aplikasi ini memiliki akses dan respon yang sangat cepat.
Q8	Aplikasi ini sangat baik dalam memberikan fitur-fitur baru.
Q9	Aplikasi ini memberikan banyak diskon, poin reward dan ongkos kirim gratis.
Q10	Secara keseluruhan seberapa puas pengalaman anda menggunakan aplikasi ini.

2.2 Collect and Pre-Process Data

In the Collect and Pre-process Data phase, a total of 100 survey responses were gathered following the distribution of the questionnaire. This stage involved collecting raw data from participants and conducting thorough data cleaning procedures to ensure its validity and reliability. Responses were examined for completeness, with any duplicate, incomplete, or inconsistent entries removed from the dataset. The cleaned data was then organized and formatted for further analysis, including the conversion of qualitative responses into quantifiable formats where necessary. This preprocessing ensured that the final dataset was accurate and ready for evaluation using standardized instruments such as the System Usability Scale (SUS) and Customer Satisfaction Score (CSAT).
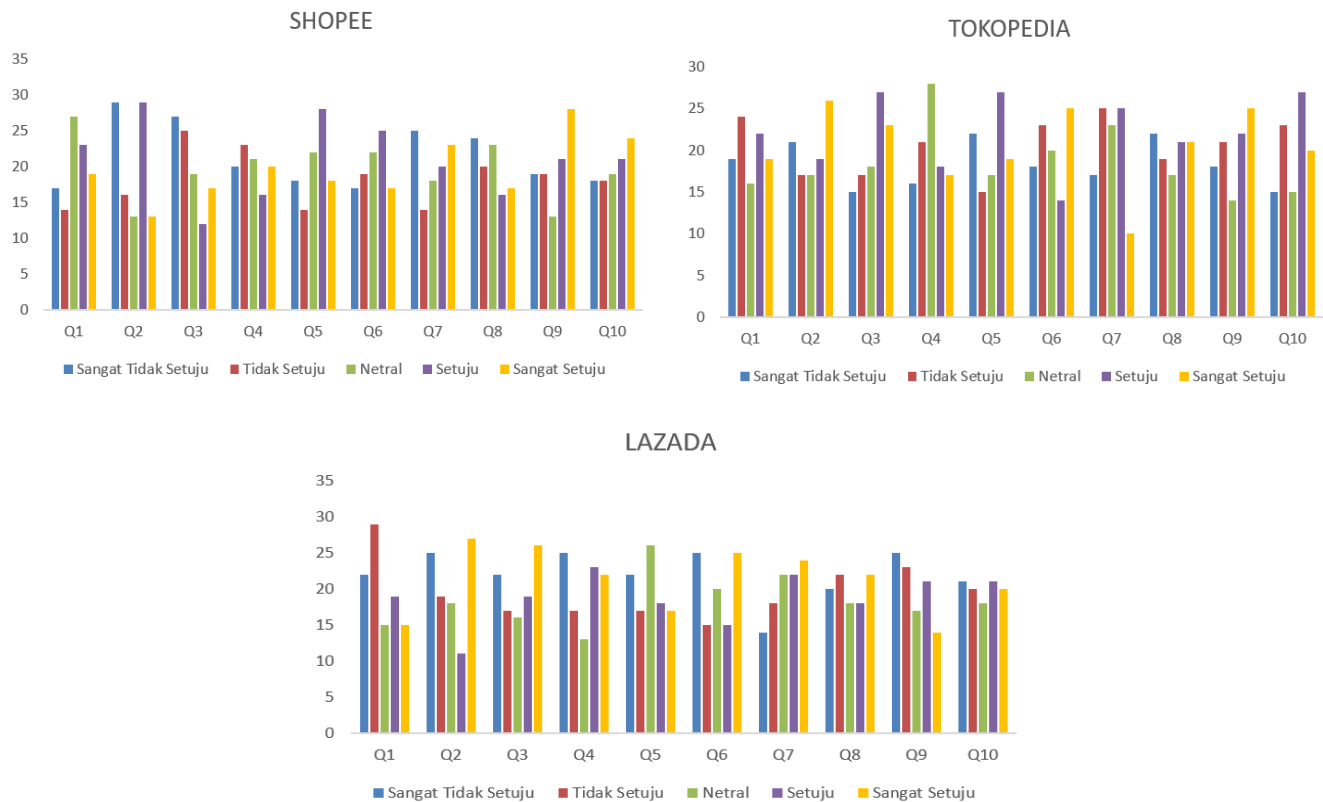
Fig 2. Survey result from 100 respondents

2.3 Analyze with SUS and CSAT

Collected survey data is systematically evaluated using the System Usability Scale (SUS) [11] and Customer Satisfaction Score (CSAT) methodologies [12]. The SUS provides a standardized way to assess the usability of a system by calculating a score based on users' agreement with specific usability statements. Meanwhile, the CSAT measures the level of satisfaction users experience with a product or service, usually through a direct rating scale. This phase ensures quantitative and qualitative understanding of user experiences, serving as the foundation for further evaluation and insights.

The System Usability Scale (SUS) is a widely used questionnaire developed in 1986 to evaluate the usability of a product, system, or interface. It consists of 10 statements rated on a 5-point Likert scale ranging from "Strongly Disagree" to "Strongly Agree." To calculate the SUS score, odd-numbered items (1, 3, 5, 7, 9) are scored by subtracting 1 from the user response, while even-numbered items (2, 4, 6, 8, 10) are scored by subtracting the user response from 5. The total of these adjusted scores is then multiplied by 2.5, resulting in a final SUS score ranging from 0 to 100, where higher scores indicate better usability [13].

Score Transformation:

$$Ti = \begin{cases} Qi - 1, & if\ i\ is\ odd\ (i\ =\ 1,\ 3,\ 5,\ 7,\ 9) \\ 5 - Qi, & if\ i\ is\ odd\ (i\ =\ 2,\ 4,\ 6,\ 8,\ 10) \end{cases} \qquad (1)$$

Customer Satisfaction Score (CSAT) is a metric used to measure how satisfied customers are with a specific product, service, or interaction. It is typically measured by asking customers a single question. Respondents rate their satisfaction on a scale, often from 1 (Very Unsatisfied) to 5 (Very Satisfied) [14].

To calculate CSAT, use the following formula:

$$CSAT\ \% = \left(\frac{Number\ of\ satisfied\ responses}{Total\ number\ of\ responses}\right) X\ 100 \qquad (2)$$

3. RESULTS AND DISCUSSION

This study employs a combined approach using the SUS and CSAT methods. The System Usability Scale (SUS) is applied to analyze responses from 10 Questions, focusing on evaluating the usability aspects of the application. Meanwhile, the Customer Satisfaction Score (CSAT) method is used for 10 Questions Q10 to assess user satisfaction with various features and services provided by the application [15]. Ten questions are designed to assess usability aspects of the application, while the other ten questions are focus on measuring user satisfaction [16], [17].

Table 2. System Usability Scale Evaluation

| Application	SUS Score	SUS Grade	Acceptance Level
Shopee	51	D	Marginal
Tokopedia	50	F	Not Acceptable
Lazada	49.55	F	Not Acceptable

Table 2 presents the System Usability Scale (SUS) scores for three major e-commerce applications: Shopee, Tokopedia, and Lazada. The SUS scores reflect the perceived usability of each platform, based on user responses to standardized usability questions. Shopee received a SUS score of 51, categorized as Grade D, which falls under the "Marginal" acceptance level. Tokopedia and Lazada scored below the marginal threshold, receiving Grade F and being classified as "Not Acceptable." These results indicate that all three applications require usability improvements, particularly Tokopedia and Lazada, which failed to meet the minimum usability standards according to SUS benchmarks.

Table 3. Customer Satisfaction Score Evaluation

Application	CSAT Score (%)	Satisfaction Category
Shopee	52	Low Satisfaction
Tokopedia	55	Low Satisfaction
Lazada	50	Very Low Satisfaction

Table 3 displays the Customer Satisfaction Score (CSAT) evaluation results for Shopee, Tokopedia, and Lazada. The CSAT score represents the percentage of users who reported being satisfied (selecting 4 or 5 on a 5-point scale). Shopee and Tokopedia received relatively low satisfaction ratings, with scores of 52% and 55%, corresponding to grades D and F respectively. Lazada scored the lowest at 50%, indicating a very low level of customer satisfaction. These findings suggest that all three applications face significant challenges in meeting user expectations and require improvements in service quality and customer experience.

This visualization presents the relationship between System Usability Scale (SUS) and Customer Satisfaction Score (CSAT) for Shopee, Tokopedia, and Lazada. Each scatter plot displays individual respondent scores with a red dashed trendline indicating the Pearson correlation. The analysis reveals weak and statistically insignificant correlations, suggesting that perceived usability does not strongly influence user satisfaction across these platforms.
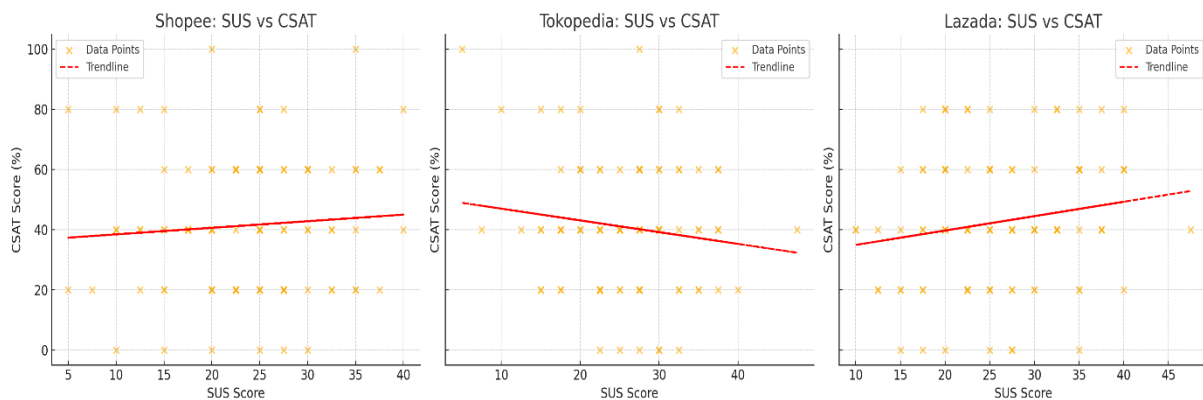
Fig 3. Correlation graph between SUS and CSAT scores for Shopee, Tokopedia, and Lazada based on the Pearson correlation

3.1 DISCUSSION

The results of the study reveal notable insights into the usability and customer satisfaction performance of three leading Indonesian e-commerce platforms Shopee, Tokopedia, and Lazada when assessed using the System Usability Scale (SUS) and Customer Satisfaction Score (CSAT) frameworks. From the SUS results, it is evident that none of the applications achieved a score that qualifies as "acceptable" in terms of usability. Shopee, although having the highest score (SUS = 51), only reached a marginal acceptance level (Grade D). Both Tokopedia (SUS = 50) and Lazada (SUS = 49.55) received Grade F, indicating poor usability. This suggests that despite being popular platforms, users still encounter significant difficulties when interacting with the interfaces, navigating features, or completing essential tasks. Similarly, the CSAT results support the SUS findings. All three platforms scored poorly in customer satisfaction: Shopee at 52%, Tokopedia at 55%, and Lazada at 50%. While Tokopedia achieved the highest satisfaction score, it still falls within the "low satisfaction" category. Lazada recorded the lowest satisfaction rate, which may reflect inadequacies in user support, perceived value, or feature quality. Interestingly, the correlation analysis using Pearson's method found a weak relationship between SUS and CSAT scores. This indicates that high usability alone does not guarantee high customer satisfaction, and vice versa. While

usability is a foundational component of user experience, satisfaction is influenced by other factors such as promotional offers, customer service, reliability, delivery experience, and brand perception. Therefore, improving usability may not directly translate into proportional gains in customer satisfaction unless other experiential elements are simultaneously enhanced.

The combined use of SUS and CSAT in this study proves to be a valuable approach in evaluating platforms from both functional and emotional perspectives. Whereas SUS focuses on the efficiency, learnability, and intuitiveness of the platform, CSAT provides a snapshot of users' emotional response to their overall experience. This dual-metric approach enables platform developers and business strategists to identify usability bottlenecks while also capturing broader user sentiments. Overall, these findings emphasize the need for e-commerce platforms to adopt a more user-centered design approach and invest in continuous user experience improvement. Enhancements could include simplifying navigation, improving system responsiveness, offering personalized experiences, and addressing specific pain points discovered through user feedback. This is critical not only for improving usability but also for driving customer satisfaction, loyalty, and long-term engagement.

4.   CONCLUSION

Based on the results from both the System Usability Scale (SUS) and Customer Satisfaction Score (CSAT) evaluations, it can be concluded that the three e-commerce platforms, Shopee, Tokopedia, and Lazada is demonstrate relatively poor performance in terms of usability and customer satisfaction. Shopee achieved the highest SUS score 51, but it only reached the marginal acceptance level Grade D, while Tokopedia and Lazada fell into the not acceptable range with lower SUS scores. This indicates that users found the overall usability of these applications to be unsatisfactory. In terms of customer satisfaction, CSAT scores were also low, with Shopee at 52%, Tokopedia at 55%, and Lazada at 50%. These scores correspond to low or very low satisfaction categories, suggesting that most users were not fully satisfied with their experiences on these platforms. The correlation analysis between System Usability Scale (SUS) and Customer Satisfaction Score (CSAT) using Pearson correlation is show a very weak relationship . Overall, the findings highlight the urgent need for all three platforms to improve both the usability aspects of their interfaces and the quality of customer experience to better meet user expectations and remain competitive in the market. This research shows that low usability values can affect customer satisfaction values.

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