

## Conference Paper

# The Analysis of Customer Satisfaction Assessments to Determine E-Siap Product Development Strategies

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**ORCID:***Damelina Basauli Tambunan*: <http://orcid.org/0000-0001-5727-9071>**Abstract**

This research was conducted to measure E-Siap customer satisfaction based on six main factors: visual aesthetic, content, e-trust, e-convenience, e-cost effectiveness and e-response. This research used a quantitative descriptive analysis with 32 users located across Indonesia. The data were collected and measured according to the mean of each factor and indicator. The aim was to obtain input for product development based on the deepening of the average value per factor and indicator, sharpened by interviews with informants who have an indication of dissatisfaction with the functions and services of the E-Siap application. It was found that the e-trust factor had the lowest average value compared to the five other factors, even though this factor was still in the area of satisfaction. Therefore, in-depth improvements will be made to ensure the user feels safe operating the E-Siap application

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## 1. Introduction

According to data released by CBInsights, an organization that focuses on conducting research in the startup world around the world, the 5 startups with the largest valuation value in Indonesia are dominated by technology companies based on SaaS (Software as a Service), where their business model is not selling products directly to users, but using a sales system with the concept of freemium, subscription, and others. Data released in early 2020 states that the 5 biggest startup companies in Indonesia are Gojek, Tokopedia, OVO, Bukalapak, and Traveloka, where the valuation of these companies is in the range of 2 to 10 billion US Dollars, with Gojek as the Indonesian company with the highest valuation.

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As a technology-based company that focuses on developing applications with a Project-based business model, CV AT management believes that to become a company with greater revenue and valuation, there needs to be an adjustment of the business model by doing diversification, where the company must have other sources of income that are sustainable and massive. From several technology-based solution products that have been successfully implemented by the company, taking into account the market potential and the level of technology acceptance as evidenced by the growth in the number of users, CV AT management decided to make the E-Siap application a mass product to be sold with a subscription model.

E-siap is a motorcycle repair shop management solution realized in the form of a web-based application that accommodates recording and monitoring processes. Its features are online booking, working order, sales, service reminder and realtime reporting. E-Siap has been successfully implemented in more than 80 workshops throughout Indonesia and contributes 40 million rupiah in income every month.

As a technology-based solution provider company, the success of the implementation process is the main goal that the company must achieve, this means that the resulting solutions must be able to be implemented and provide benefits to consumers. Therefore, measuring the level of acceptance which is realized from the level of customer satisfaction as an application user needs to be done regularly.

Measurement of user satisfaction is one of three measurements of information system effectiveness, namely Website Design (Visual Esthetic), Content, E-Trust, E-Convenience, E-Cost Effectiveness, and E-Response (Support). The measurement of user satisfaction in an information system is one of the most important indicators that will reflect the extent to which the developed information system is able to provide benefits and meet the expectations of its users, where in this context it is the user of the E- Siap application, which is primarily the user (cashier) who come face to face with the application every day.

In this study, not all features will be measured for customer satisfaction, but the measurement will be made on features that can be accessed by cashier, namely sales and service features. The purpose of this study is to determine the level of user satisfaction (cashier) on the performance of the E-Siap application and also to determine its development strategy based on the results of user satisfaction.

## 2. Literature Review

## 2.1. Literature review

### 2.1.1. Previous research

Hansemark and Albinsson (2004) in Angelova and Zekiri (2011) state that consumer satisfaction is the overall attitude of consumers to services provided by the company, or it can also be interpreted as an emotional reaction of consumers to expectations and what they receive, which is related to meeting needs, goals, and desires. Consumer satisfaction has a positive effect on company profitability. The more consumers who are satisfied with a service, the more likely the company will benefit from repeat purchases and recommendations. Angelova and Zekiri (2011) also state that consumer expectations play an important role in determining customer satisfaction. The greater the services provided are able to meet the needs and expectations of consumers, the greater the level of customer satisfaction that will be generated.

Hari Laihonen and Aki Jääskeläinen (2014) state that measuring the performance of an information system can be done from three perspectives, namely performance of individual actors, internal efficiency of a network, and customer perceived performance of service operations. Performance of individual actors can be defined as the performance of a person (operator) in doing all forms of work that are directly related to the use of the information system. The perspective of this measurement is the measurement of the performance of the company's internal staff who are responsible for managing the required data so that the information system can provide relevant data as needed by its users.

The second perspective in this theory is the internal efficiency of a network or which can be interpreted as the efficiency of using direct infrastructure which can be in the form of servers, networks, data storage, and so on. Measuring the efficiency of the use of this infrastructure can also be interpreted as optimizing the use of good asset resources, which will determine how well this information system is able to provide benefits when needed. This efficiency measure can be in the form of how often the information system cannot be accessed.

The third perspective in this theory is customer-perceived performance of service operations where measurements are made of consumer responses to information system performance, which can also be interpreted as how high the information system is able to meet user expectations. User expectations can be in the form of relevant information that is presented before or after a transaction, where this information will

help the staff involved in planning activities and evaluating the activities that have been carried out.

### 2.1.2. Product development strategy

Cooper (1994) and Allen (2003) describe a continuous relationship from the opportunity recognition or discovery process to the product release process for market use. Some of the stages that must be followed are as follows:

1. The opportunity recognition or discovery stage. All forms of input and feedback obtained from new and old users are recorded and analyzed,
2. Stages of technology screening & platform identification. The engineering team analyzes the technology used based on input and feedback from users, is it possible if the technology used is explored further to accommodate input from users,
3. Stages of concept investigation & feasibility analysis. The engineering team provides alternative solutions or technology to ensure that input from users can be accommodated,
4. Financial analysis stages. Cost and benefits are measured financially if technological changes are made,
5. Design & development platform stages. The required platform design and development is carried out as an ecosystem where the technology will be implemented. The platform in question can be in the form of additional or replacement infrastructure needed to ensure the product can be used properly by users,
6. Stages of in-house testing. Testing is carried out by the company's internal QC team to ensure the platform is in accordance with what is needed,
7. Stages of product design & development. Product design and development is carried out in accordance with user input and feedback. Changes here can be minor or major changes.
8. Stages of in-house product test. Testing by the company's in-house QC team to make sure the product works as expected,
9. Stages of limited market test. Testing for certain users who have specifications according to the criteria for early adopters,

10. Business Model pre-launch stages. Socialization to users before the update is actually released for mass use,
11. Market launch stages. The latest application updates are enforced in mass

### **2.1.3. Company Performance Measurement**

Company performance can be categorized into two types, namely company performance from a financial perspective and company performance from a non-financial perspective. From a financial point of view, company performance can be measured from the company's financial condition in the form of profitability ratios, solvency and company sustainability. Meanwhile, company performance from a non-financial point of view can be interpreted as other factors that determine company performance such as internal staff performance, internal staff satisfaction, customer satisfaction with company services, as well as the level of trust and loyalty of consumers in the company's brand. In this study, the measurement to be carried out is the measurement of company performance from a non- financial point of view, namely customer satisfaction who is an E-Siap application user.

### **2.1.4. Information system user satisfaction**

In a research conducted by Sathyavany (2018) states that there are six factors that determine the quality of an e-service:

1. Website Design (Visual Esthetic). The indicators are ease of navigation; use of images, videos and color themes; layout and layout; as well as how to convey information.
2. Content. The indicators are ease of user access; the quality of information; the quantity of information; as well as simplicity of the website.
3. E-Trust. The indicators are features presented on the appropriate page and user understanding of the privacy policy.
4. E-Convenience. The indicators are ease of access, ease of content searching and human error evaluation.
5. E-Cost Effectiveness. The indicators are increased income and decreased cost.
6. E-Response (Support). The indicators are usage information availability, support staff availability, the quality of solution, and duration of completion.

### 2.1.5. The zone of tolerance theory

Berry (1991) in the journal Robert (1995) defines the zone of tolerance theory as a way to evaluate the performance of a service, where this indicator is a range of assessments of the performance of a service related to user satisfaction. There are three areas, namely the area of dissatisfaction where users feel they are not getting the service they should, or do not meet the expectations that are in the user's mind; delight which is the highest rating where users feel that the service received exceeds expectations; and satisfaction, which is the area between dissatisfaction and delight, where services in this range are quite good services and answer the needs and expectations of users.

In this research, the satisfaction range for each satisfaction factor is different. This difference is based on how often the user interacts with each factor. The following is a description of the satisfaction range for each factor determined by the Company:

1. Visual Esthetic. In this factor, the satisfaction range is considered to have a wide range due to the user's experience in accessing other applications. a wide range of user satisfaction 1 to 1.9 would be considered an area of dissatisfaction, 2.0 to 3.9 would be considered a satisfaction area, and 4.0 to 5.0 would be considered a delight area.
2. Content. In this factor, the satisfaction range is considered to have a small range due to limited user experience in obtaining information from other similar applications. A wide range of user satisfaction 1 to 1.9 will be considered an area of dissatisfaction, 2.0 to 2.9 will be considered a satisfaction area, and 3.0 to 5.0 will be considered a delight area.
3. E-Trust. In this factor, the satisfaction range is considered to have a wide range because of the user's experience in processing data in the application and the reference to the user's privacy policy that can be seen from other applications. a wide range of user satisfaction 1 to 1.9 would be considered an area of dissatisfaction, 2.0 to 3.9 would be considered a satisfaction area, and 4.0 to 5.0 would be considered a delight area.
4. E-Convenience. In this factor, the satisfaction range is considered to have a wide range due to the user's experience in accessing other applications from anywhere and anytime. A wide range of user satisfaction 1 to 1.9 would be considered an area of dissatisfaction, 2.0 to 3.9 would be considered a satisfaction area, and 4.0 to 5 would be considered a delight area.

5. E-Cost Effectiveness. In this factor, the satisfaction range is considered to have a small range due to the limited reference of user experience in using other similar applications. The width of the user satisfaction range 1 to 1.9 will be considered as the area of dissatisfaction, 2.0 to 2.9 will be considered as the satisfaction area, and 3.0 to 5 will be considered as the area of delight.
6. E-Response (Support). In this factor, the satisfaction range is considered to have a wide range because of the user experience in getting help and the availability of usage instructions in other applications. A wide range of user satisfaction 1 to 1.9 would be considered a dissatisfaction area, 2.0 to 3.9 would be considered a satisfaction area, and 4.0 to 5 would be considered a delight area.

### 2.1.6. The e-siap application

The E-Siap application is an application developed by CV AT to be a solution to workshop management problems that are often experienced by workshop owners in Indonesia. In the E-Siap application, users will get various benefits that cannot be obtained from other workshop management applications:

1. Online-based application, so owners or managers can monitor anytime and anywhere,
2. The application has complete features, from online bookings, spare parts sales, vehicle maintenance transaction recording, notification reminders for periodic maintenance, and realtime reporting that can be accessed anytime and anywhere,
3. It has a centralized database of spare parts items, so users don't have to worry about inputting spare part items that number up to tens of thousands,

Initially, the E-Siap application is a desktop-based application that needs to be installed on each workshop's computer and connected to an intranet network. However, the current E-Siap application is an application that has been further developed and becomes a web-based application which in the future will be further developed towards a mobile-based application that can be accessed by service advisors and consumers.

## 2.2. Analysis Model

The analysis model used in this research is the measurement of the level of consumer satisfaction who is the direct user or operator of the E-Siap application based on six

factors, namely Visual Esthetic, Content, E-Trust, E-Convenience, E-Cost Effectiveness, and E-Response such as which can be seen from Figure 1.

Descriptive statistical data is measured based on the following six factors:

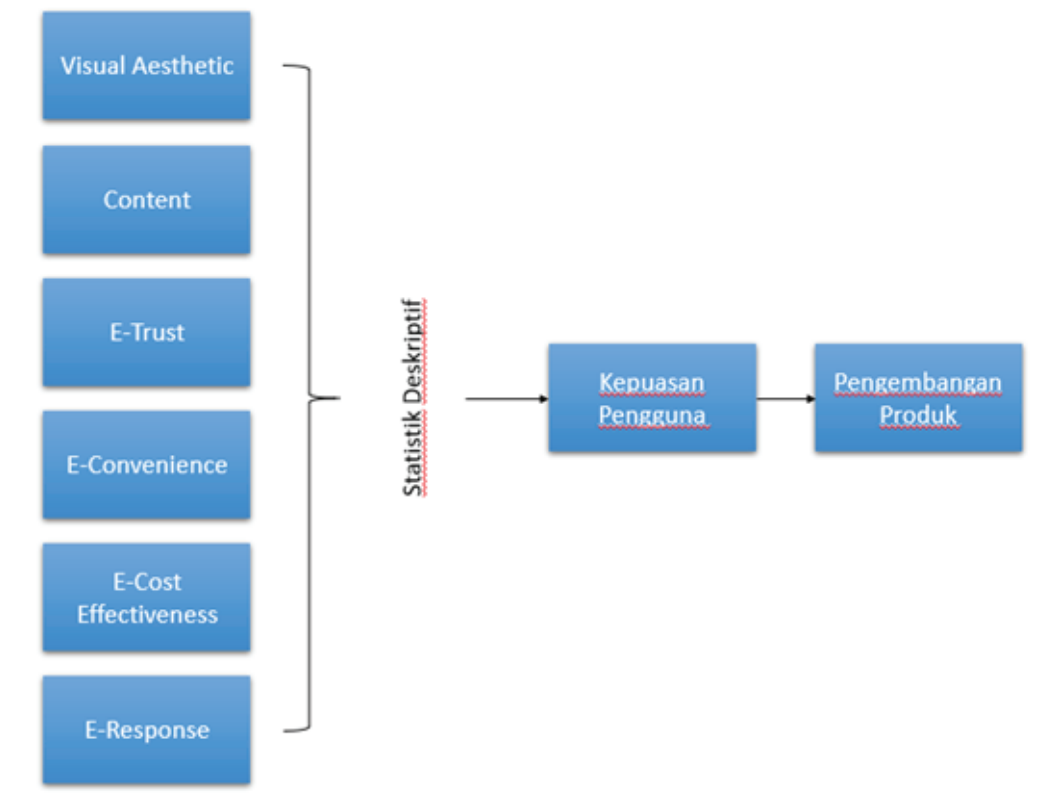
1. Visual aesthetic: ease of navigation in the application; use of images, videos, and coloring themes that give a positive impression; application layout that is easy for users to understand; and how information is presented to users
2. Content: the quality of the information presented in the application, the ease with which users can access the main application page, the simplicity of the application usage flow, and the amount of information presented on certain pages in the application.
3. E-trust: presentation of features on the right page and user understanding of the privacy policy on the application.
4. E-convenience: applications can be accessed from anywhere and anytime, easy and fast item search process, and repair orders when a human error occurs.
5. E-cost effectiveness: increase in the number of transactions that can be completed by users and decrease operational and administrative costs
6. E-response: the availability of an application use instruction guide, the availability of support staff who will help with user problems, the quality of the solutions provided by the support staff to users, and the duration of solving problems experienced by users.

### 3. Research Methodology

This study uses descriptive quantitative research methods (sugiyono, 2018) to get an overview and information regarding the response of the e-siap application user and tend to use analysis. The analysis process is made using a subjective point of view, where in this study the theoretical basis is used as a reference so that the focus of the research is in accordance with the reality in the field.

Cluster random sampling was carried out on all e-siap users who were cashier employees with a total of 80 people, but in anticipation of limited time and energy, gay (1992) stated that for a descriptive quantitative study, at least 10% of the total population was needed, but if population is of small value, then the sample size is at least 20% of the total population. Therefore, the minimum number of samples that must be found





**Figure 1:** Research Analysis Model for User Satisfaction and Product Development

from the total population is 16 samples. In this study, an online survey will be given to all 80 users of the e-siap application who occupy the position of cashier employees.

The data to be analyzed in this study will be retrieved using an online questionnaire which will be displayed as a flash page after the user logs in to the e-siap application. The measurement technique used is to use a likert scale with a range of 1 to 5. The data is taken using six factors as in Figure 3.2 with questions that are tailored to the selected sample. Questions for users will relate to using the E- Siap app as a cashier. To find out the operational definition of each factor, it can be seen in Table 1.

The validity and reliability test of this study was carried out using the spss statistics version 26 program. Testing the validity of the items was carried out using the product moment correlation coefficient, and if the correlation test value between indicators with a total value was less than alpha (5%) then the instrument was said to be valid. (solimun, 2012). The reliability test used the cronbach alpha coefficient. According to burns (2008), the value of the cronbach alpha coefficient ranges from 0 to 1. The value of the alpha coefficient ( $\alpha$ ) less than 0.5 is considered unfavorable. Coefficient values between 0.7 and 0.9 can be accepted by most instruments, and a coefficient value above 0.9 makes the instrument considered very reliable

TABLE 1: Operational Definition Factors

Factor	Operational Definiton	Indicator	Questionnaire Item
Visual Aesthetic	components in a web page that is opened by the user (Rajaobecins, 2011, Bressolles, 2004, Kim, 2015)	Ease of Navigation in E-Siap application	C311, C312
		Use of Images, Videos, and Coloring that gives a positive impression on the E-Siap Application	C313, C314
		The E-Siap Application Layout is easy for users to understand	C315, C316
		How to Present Information to E-Siap users	C317
Content	credibility of information as well as ease and clarity of access to the main features relating to the transactions made. (Ahmad et al, 2011, Fogg,2011, Chouk & Perrien, 2003)	Quality of information presented by the E- Siap Application	C321, C322
		Ease of users in accessing the main page of the E-Siap application	C323, C324
		Simplicity of E-Siap Application for users	C325, C326
		The amount of information presented on a page	C327, C328
E-Trust	fulfillment of needs as well as data security and confidentiality. (Wolfingbarger & Gilly, 2003, Dong-Her at al, 2004,)	The features are presented on the right page	C331, C332
		User understanding of the Privacy Policy on the E-Siap application	C333
E-Convenience	access, search, evaluation, transactions, product delivery, and convenience after transactions. (Hazlina et al, 2011, Ling Jiang et al, 2011)	Applications can be accessed from anywhere and anytime	C341, C342
		item search can be done easily	C343
		Order repair when a human error occurs	C344
E-Cost Effectiveness	decreased costs and increased income, (Aliyu et al, 2012)	An increase in the number of transactions a user can complete	C351, C352
		Reduction of operational and administrative costs	C353, C354
E-Response	the company's ability to repair or modify products	Availability of Instruction Guide for using the application	C361

## 4. Discussion

Based on the results of calculations in this study, the average value of the overall level of user satisfaction is 4.121 with a standard deviation of 0.638 with details as shown in Table 5.3. The highest satisfaction is in the E-Convenience factor with an average value of 4.219, while the lowest factor is E-Trust with an average value of 3.958.

TABLE 2: Descriptive Statistics

Factor	Mean	Std. Deviation
Visual Aesthetic	4,196	0,529
Content	4,125	0,604
E-Trust	3,958	0,637
E-Convenience	4,219	0,678
E-Cost Effectiveness	4,117	0,634
E-Response	4,109	0,747
Total	4,121	0,638

The satisfaction level of each factor summarized in Table 5.10 shows that overall, the average user satisfaction is at a value of 4.121 which means it is in the delight range. With the highest average level of satisfaction is the E-Convenience factor which gets a value of 4.219 and the lowest average satisfaction level is E-Trust with a value of 3.958.

TABLE 3: Resume of User Satisfaction Results

Factor	Mean	ZoT
Visual Aesthetic	4,196	Delight
Content	4,125	Delight
E-Trust	3,958	Satisfaction
E-Convenience	4,219	Delight
E-Cost Effectiveness	4,117	Delight
E-Response	4,109	Delight
Total	4,121	Delight

E-Service Quality will have an effect in the direction of user satisfaction, this is because user satisfaction is not only caused by meeting needs, but also satisfaction with the experience of using a product. In this study, testing was only carried out to see the level of user satisfaction with the observed factors, but did not emphasize the relationship between quality and satisfaction and satisfaction with user loyalty.

The small standard deviation resulting from descriptive statistics can mean that the company is able to develop and release each feature properly, thereby minimizing the occurrence of errors, damage, and the user's inability to adapt to a given change. The process of developing and releasing features that are carried out incrementally is the

key to the company’s success in preventing negative effects felt by users on the E-Siap application.

Based on the results of research that has been done, although the average value of user satisfaction is above 4.0, there is still room for improvement that may be made by CV AT’s management to optimize the use of the E-Siap application so that user satisfaction increases. The following are suggestions that can be given by the author to CV AT management in order to increase the average value of user satisfaction, namely:

TABLE 4

Visual Aesthetic	The size of the column for inputting motor vehicle license plates and searching for customer names is enlarged, you can use the large “+” button which will pop up the input column to make it easier for users when making a new transaction,
	Provide a dark mode or dark mode theme to ease the eye burden of users who use the E-Siap application for a long duration or in low light conditions.
Content	Reducing the information displayed on the transaction page, so that users can more easily understand the information presented.
	To anticipate RTO, it is necessary to add a timestamp record and a re-check flow on the server. When there are indications of double requests in a short time, so that the information displayed on the user’s page is correct,
E-Trust	There needs to be assistance to users when setting access rights for each user.
	There needs to be a pop up article that displays the privacy policy every time a user logs in to the E-Siap application.
E-Convenience	
E-Cost Effectiveness	It is necessary to carry out periodic training related to interpersonal skills and selling skills by CV AT as a form of CRM for all users of the E-Siap application.
E-Response	need to conduct interpersonal training to customer service staff and make arrangements of hours and active days of each staff so that customer service activities can take place 7 days a week and 24 hours a day.

## 5. Conclusion

Based on the results of data analysis and discussion in the previous chapter, it can be concluded in this study that:

1. The average level of user satisfaction with the E-Siap application is 4,121,
2. The average level of user satisfaction with the e-convenience factor is at the highest value of 4.219, this is because the use of the E-Siap application really helps facilitate the work of users who are cashier employees at workshops who are E-Siap clients,

3. The average level of user satisfaction with four other factors, namely visual aesthetic, content, e-cost effectiveness, and e-response has a value above 4.0 which means good, although there is still room for improvement to increase user satisfaction and increase usability. E-Siap application to support clients' business,
4. The e-trust factor is the most important factor to be evaluated and corrected as soon as possible because it has the lowest average value compared to the other five factors, namely 3.958.
5. Based on the descriptive statistical analysis in this study, the E-Siap product development strategy carried out by CV AT will be carried out in stages, with several things that will become the main points of attention, namely:
  - (a) The results of descriptive analysis will be used as a reference at the opportunity recognition stage.
  - (b) In the feasibility study stage, the feedback will be determined which will be used and executed first.
  - (c) The testing process for platforms and products will be carried out in stages, namely internally, then followed by a limited trial for designated users, and will end with a mass update release.
  - (d) After the application is released used by all E-Siap application users, a re-survey will be carried out to explore input and feedback from users.

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## Conflict of Interest

The authors have no conflict of interest to declare.

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