




Analysis of User Satisfaction Level of PTPP System Using EUCS and IPA Methods

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Abstract. Customer satisfaction is the result of an evaluation of the services provided. One way to measure customer satisfaction is through a questionnaire. Evaluation includes service quality and system effectiveness in helping customers solve problems. Request for Preventive and Corrective Action (PTPP) is one of the processes carried out at ITB STIKOM Bali to handle various complaints and input from customers. So far, the process has been carried out conventionally by filling out a complaint form and processing it to the relevant unit, for which sometimes the form is lost and must be re-created so, that a PTPP system was built that has been implemented and used by all parts of ITB STIKOM Bali. From the beginning of the PTPP system, customer satisfaction measurements have not been carried out so managers do not understand whether the system and system performance can run according to the process. This study will apply the EUCS and IPA methods which will later be used as documentation of the results of user satisfaction with the PTPP system. Of the 12 statements, the results of a value of more than 100% are in statements P2, P3, P4, P5, P8, and P12 where this statement means that it has exceeded user expectations. The the highest statement is 114.4%, namely the PTPP design, and menu are easy to understand. The development recommendation is taken from the lowest value, 93.89%, in statement, P10, namely the PTPP display is not easily accessible on various platforms, so there is a display that does not provide good information. It is necessary to develop the system to be more responsive when accessed through various platforms.

Keywords: Customer Satisfaction, EUCS, Evaluation, IPA

1 Introduction

Information technology has a transformative impact on various aspects of life and covers all fields of science in the world of education (Amanda et al., 2019; Farisi & Zuraidah, 2022). The rapid development of information technology in the current era of globalization has made the need for information a necessity in human life (Yazid et al., 2019). Information systems are an important part of the use of information technology (Dalimunthe & Ismiati, 2016; Qholisa & Nudin, 2023). An information system can be defined as a series of formal procedures in which data is collected,

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A. A. N. G. Saptaka et al. (eds.), *Proceedings of the International Conference on Sustainable Green Tourism Applied Science - Social Applied Science 2024 (ICoSTAS-SAS 2024)*, Advances in Economics, Business and Management Research 308,
https://doi.org/10.2991/978-94-6463-622-2_80

processed into information, and distributed to users (Darwi, 2019). Information systems are developed to assist users in carrying out their tasks. The use of information systems in an organization can provide convenience for the organization in running its business, especially in processing information (Fitriansyah & Harris, 2018; Ong & Pambudi, 2014).

Measuring user satisfaction is a critical aspect of the development of information technology and systems. User satisfaction is an important factor that influences the acceptance and effectiveness of the system (Damayanti, 2018; Rinjani et al., 2021). In measuring user satisfaction, many methods have been developed to provide a deeper understanding of user preferences and expectations. The PTPP (Request for Corrective and Preventive Action) system is a system managed by the Directorate of Quality Assurance and Internal Supervision unit which functions to manage the complaint process originating from the suggestion box, email support@stikom-bali.ac.id and direct complaints. The entire process used to use conventional methods. Complaints were received and written into the PTPP form and distributed to each related unit. However, this has various obstacles, especially in the distribution of forms which are sometimes lost and must be remade. From these problems, a system was created that can accommodate all conventional PTPP processes into the system. This PTPP system has been implemented in 2022 and has been running well. All complaints and the process of filling out the form have been entered into the system.

From the system implemented until now, there has never been a performance measurement and user satisfaction measurement in using the system. This measurement will later become a recommendation and suggestion so that the system can be developed better according to user needs. In this study, user satisfaction measurements were carried out using the EUCS method, and system performance measurements using IPA. These two methods are the Expectation-Confirmation Theory (ECT) with the EUCS (End-User Computing Satisfaction) method and the Importance-Performance Analysis (IPA). The EUCS method focuses on comparing user expectations with confirmation of their experience in using the system. EUCS measures the level of satisfaction by identifying the extent to which users feel that the system meets their expectations. The results of the EUCS measurement provide information about whether users feel the system is performing according to their expectations.

Meanwhile, the IPA method focuses on comparing the level of importance of system attributes with the actual performance of the system on those attributes. IPA helps in identifying the priority of improvements that need to be made to the system based on the difference between the importance of attributes and their actual performance. Thus, IPA provides insight into where improvements should be focused to improve user satisfaction. Some background considerations of the study include:

1. **User Satisfaction Variability:** System users have diverse needs, expectations, and preferences. Therefore, the use of EUCS and IPA methods can help organizations understand the differences in user satisfaction levels based on different attributes.
2. **System Development and Maintenance:** In the context of system development and maintenance, companies need to decide on the optimal allocation of resources to enhance user satisfaction. A combination of EUCS and IPA methods can help in identifying areas that require priority improvement.

3. **Complex System Evaluation:** Modern information systems are often complex and have many attributes that can affect user satisfaction. Using EUCS and IPA together allows for a more comprehensive assessment of the aspects of the system that contribute to user satisfaction.

Quality of service will certainly create user satisfaction with a service, in this case, quality and user satisfaction are closely related. Web quality will greatly affect the level of user satisfaction itself. The higher the quality of the web, the more users will access the web. User involvement in the use of information system technology greatly determines the success of a quality system and the information it produces.

From the background above, a study will be conducted that can measure user satisfaction with the PTPP system. This study will later produce an analysis of user satisfaction with the use of the PTPP system and the results of measuring user satisfaction will be used as a reference and benchmark for the success and performance of the system. From both methods, recommendations will be provided for the services provided by the system. The formulation of the problem of this study is how to find out the level of customer satisfaction in using the PTPP system and conduct an evaluation using the IPA and EUCS methods.

2 Methodology

The conceptual model of the research describes the flow of work carried out in the research from the initial stage to the final process of making the report. The model or stages of this research are as follows:

1. **Concept exploration and Observation:** The first stage carried out in this research stage is to look for references and search literature related to the evaluation of user satisfaction with technology. In this stage, direct observation is also carried out on how the conditions in the field are regarding the PTPP system that will be raised in the research.
2. **Data collection:** This stage will collect data that will be used to proceed to the questionnaire distribution and analysis stage. The data collected are system user data, the number of PTPP created, and data on units receiving PTPP. After the data is obtained, the next stage is the distribution of questionnaires with 2 methods, namely the distribution of the EUCS method and the IPA method. Respondents in this study were all GKM, Management representatives, Heads of Study Programs, Directors, and Coordinators who played an active role in using the system. The questionnaire will later be distributed using Google Forms and hardcopy. The total number of respondents was 58 respondents.
3. **Analysis:** This stage will analyze the results of the questionnaire that has been distributed to users who use the PTPP system. From the data, it is processed to be entered into the data processing in each method.
4. **EUCS Method and IPA Method:** This stage will process data from the questionnaires that have been distributed. In the distribution of the questionnaire will be given to 30 respondents who are users of the PTPP system.

5. Satisfaction evaluation results: This stage is carried out after the questionnaire data has been distributed and processed using the EUCS method. The results of the processing are compiled into a report related to user satisfaction in using the PTPP system and provide recommendations from the results of this evaluation.
6. Results of system performance evaluation: At this stage, data processing will be carried out from the results of the questionnaires that have been distributed, the questionnaire data will be processed using the IPA method followed by the preparation of a system performance report.
7. System development evaluation report: At this stage, what is done is to prepare a report on activities that have been carried out during the research process and carry out an evaluation related to the results of data processing.

This sub-chapter will explain the systematics in conducting research, the systematics are as follows Figure 1.

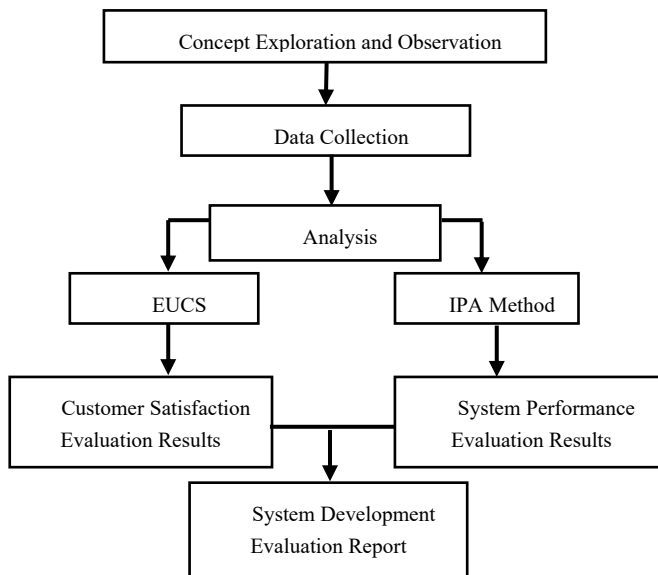


Figure 1. PTPP system research flow systematics

3 Results and Discussion

3.1 Results

At this stage, the results of data processing from 30 respondents will be discussed. The distribution of questionnaires is divided based on several categories of PTPP system users, namely: Rectorate, Director, Dean, Head of Study Program, and Quality Control Group. A total of 30 respondents were divided into 10 male respondents and 20 female

respondents. The questionnaire distribution method used the Simple Random Sampling method by randomly selecting respondents who filled out the questionnaire. From these results, data processing was carried out using the IPA and EUCS methods. The division of question categories in the IPA and EUCS methods is divided into measuring the dimensions of expectation/importance (Importance) and performance/ reality (Performance). The question categories in this case are divided based on the assessment of the variables' content, accuracy, design, ease of use, and timeliness. The overall results of processing these variables are in the following Table 1.

Table 1. Variable data processing

Variables	Percentage expectation/ interest (Importance)	Performance/ reality (Performance)
Content	85% (Very Important)	87% (Very satisfied)
Accuracy	83% (Very Important)	83% (Very Satisfied)
Design	87% (Very Important)	87% (Very Satisfied)
Ease of use	83% (Very Important)	84% (Very Satisfied)
Timeliness	84% (Very Important)	84% (Very Satisfied)

3.2 Importance Performance Analysis

Analysis of the level of conformity based on the assessment of the level of importance/expectation (Importance) and the assessment of performance/ reality (Performance) to obtain the percentage of the level of conformity between the level of importance/expectation (Importance) and performance/reality (Performance). The percentage of the level of conformity will later be used as a priority order for increasing the factors that affect the level of satisfaction of PTPP users in using the application. By knowing this, the PTPP application development team can find out what needs to be improved and maintained. Data can be seen in the Table 2.

Table 2. Results of compliance level calculation

No	Attribute	Xi	Yi	Tki (%)
Content Variable				
1	The PTPP system produces information that suits your needs.	125	130	96.15
2	The PTPP system produces information that is easy for you to understand.	133	131	101.53
Accuracy Variable				
3	The PTPP system produces complete information for you, Sir/ Madam.	123	121	101.65
4	The PTPP system displays correct and accurate information.	123	122	100.82
5	The PTPP system displays output according to the command.	128	125	102.40

Design Variables				
6	The PTPP System Design has an attractive color setting	128	135	94.81
7	The PTPP System Design has a layout that makes it easy for you to use it.	127	130	97.69
8	The PTPP System Design displays easy-to-understand menus	135	118	114.41
Ease of Use				
9	The PTPP system is easy to use (user friendly)	128	130	98.46
10	The PTPP system is easy to access anywhere and anytime	123	131	93.89
Timeliness				
11	The PTPP system displays the latest information	125	129	96.90
12	The information needed is quickly obtained	127	126	100.79

The data above shows the calculation results of the level of conformity obtained through a comparison between performance/ reality with the interests/ expectations of 12 statement attributes on each existing attribute. The lowest percentage level is the priority scale of the most prioritized improvements. From the results obtained, 6 statements exceeded 100%, namely on attributes P2, P3, P4, P5, 8, and P12, which means that the performance of the statement has exceeded user expectations. The highest ranking is 114.4% which is the PTPP System Design displaying an easy-to-understand menu. The lowest ranking is 96.90%, namely the PTPP System is easily accessible anywhere and anytime.

3.3 Quadrant Analysis in Importance Performance IPA (Importance Performance Analysis)

IPA is a tool used to analyze the level of Importance and Performance levels which aims to find out which attributes need to be improved/enhanced and which attributes need to be maintained in the PTPP application so that it can increase user satisfaction using the application. The first step that needs to be taken to analyze the Quadrant is to find the average value of each attribute owned by Importance and Performance, the results of calculating the average value of the Importance and Performance scores can be seen in the following Table 3.

Table 3. Average values of importance and performance

No	Atribut	X (%)	Y (%)	Skor (S)%
Variabel content				
1	The PTPP system produces information that suits your needs.	4.17	4.33	18.06
2	The PTPP system produces information that is easy for you to understand.	4.43	4.37	19.36
Variabel accuracy				
3	The PTPP system produces complete information.	4.10	4.03	16.54

4	The PTPP system displays correct and accurate information	4.10	4.07	16.67
5	The PTPP system displays output according to the command.	4.27	4.17	17.78
Variabel desain				
6	PTPP System Design has an attractive color setting	4.27	4.50	19.20
7	The PTPP System Design has a layout that makes it easy for you to use it.	4.23	4.33	18.34
8	PTPP System Design displays easy to understand menus	4.50	3.93	17.70
Ease of use				
9	PTPP system is easy to use (user friendly)	4.27	4.33	18.49
10	PTPP system is easy to access anywhere and anytime	4.10	4.37	17.90
Timeliness				
11	PTPP system displays the latest information	4.17	4.30	17.92
12	The information needed is quickly obtained	4.23	4.20	17.78

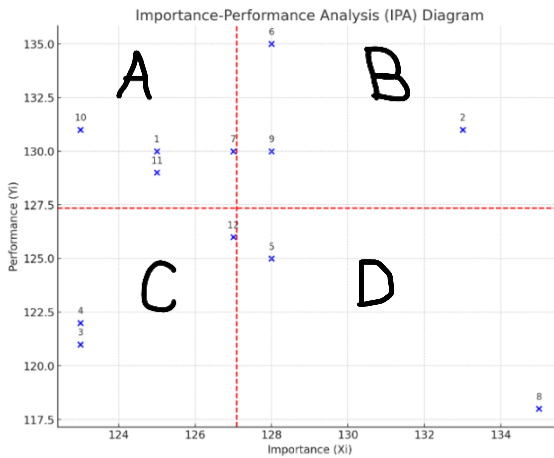


Figure 2. Cartesian diagram

The Figure 2, above is a Cartesian diagram to display the results in the IPA method. The quadrant is divided into 4 parts with 2 variables expectation and performance. The results that fall into quadrant A fall into aspects that need to be improved. Quadrant B falls into aspects of attributes that have provided good quality and need to be maintained. Quadrant C falls into low quality and the focus of attributes is not so expected. While quadrant D falls into aspects of high performance but low level of importance.

4 Conclusion

The conclusion that can be drawn from the results of this study is that overall the PTPP system has provided the information needed by users. Based on the measurement of the dimensions of expectations/interests, the PTPP system is included in the Very Good range. The performance/reality measurement category of the PTPP system is included in the Very Satisfied range. Of the 12 statements, the results of values of more than 100% are in statements P2, P3, P4, P5, P8, and P12 where this statement means that it has exceeded user expectations. The highest statement is 114.4%, namely the PTPP design and menu are easy to understand. Development recommendations are taken from the lowest value, namely 93.89%, in statement P10, the PTPP display is not easily accessible on various platforms, so some displays do not provide good information. It is necessary to develop the system to be more responsive when accessed through various platforms.

Acknowledgment

The research was supported by a grant from ITB STIKOM Bali in 2024. In addition, the authors are indebted to the ITB STIKOM Bali, which provided a grant to assist with the research.

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