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Evaluating E-Administration Features on User Satisfaction Using the Kano Model: A Melung Village-Owned Enterprise Case Study

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Abstract

This research evaluates user satisfaction with the e-administration system at the Village-Owned Enterprises (BUMDes) Melung, focusing on identifying features that influence user satisfaction using the Kano model. A survey was conducted with 50 respondents who are active users of the system, analyzing 16 key features, including user registration, online payment, financial transparency, and service reporting. The results indicate that the Online Payment and Financial Transparency features are categorized as "Must-be," meaning these features are considered very important and must function optimally for users to remain satisfied. Meanwhile, the Tour Package Booking and Service Reporting features fall into the "One-dimensional" category, where improvements in the quality of these features directly correlate with increased user satisfaction. These findings suggest that fundamental features supporting reliability and accessibility are top priorities, while optimizing other features can further enhance overall user satisfaction. Development recommendations include improving performance on critical features to ensure a more responsive and efficient e-administration system.

Keywords: BUMDes, Website, E-Administration, Kano Model, User Satisfaction

1. INTRODUCTION

In the current digital era, many organizations, including Village-Owned Enterprises (BUMDes), are shifting to e-administration systems to enhance efficiency and transparency in administrative management [1]. However, despite the implementation of these systems aimed at providing convenience, there are significant issues related to user satisfaction [2]. Many users feel that the existing system does not fully meet their needs, which can lead to dissatisfaction and a decline in system usage. This study aims to evaluate the limited user satisfaction with the e-administration system at BUMDes and its impact on the effectiveness of the services provided [3].

The main issue to be addressed in this research is the lack of understanding of user needs and expectations regarding the e-administration system [4]. Previous studies have shown that user dissatisfaction is often caused by the lack of relevant features and poor user experience. Therefore, it is essential to conduct an in-depth evaluation of the factors affecting user satisfaction, as well as to identify areas that need improvement.

In this context, the Kano model will be used as a tool to understand user needs [5]. This model enables researchers to identify and classify the features desired by users and how those features contribute to user satisfaction. The Kano model is chosen for its ability to express user expectations in greater depth, which can help in designing a system that is more responsive to user needs [6], [7], [8]. By using this model, this research is expected to provide deeper insights on how to improve the e-administration system at BUMDes.

Thus, this research not only focuses on evaluating user satisfaction but also on developing recommendations based on a better understanding of user needs. The results of this study are expected to positively contribute to the development of the e-administration system at BUMDes and to enhance the overall user experience. The resulting recommendations will include features that need to be added or improved to meet user expectations, thus effectively increasing satisfaction and the use of the system.

2. METHODS

This research employs a descriptive quantitative approach aimed at evaluating user satisfaction[9] with the e-administration features on the Bumdes Melung website. The evaluation is conducted using the Kano model, which is capable of identifying user needs and preferences regarding system features in depth. Data is collected through a questionnaire distributed to website users, and then processed using Kano model analysis to categorize functionalities based on user satisfaction levels [10].

2.1. Research Design

To effectively identify the system's functionalities, it is important to consider user requirements and technological capabilities[11]. The functionalities analyzed in this study are identified based on a use case diagram that illustrates the interactions between actors and the features present in the Melung tourism management system. Below is the use case diagram used as a guide:

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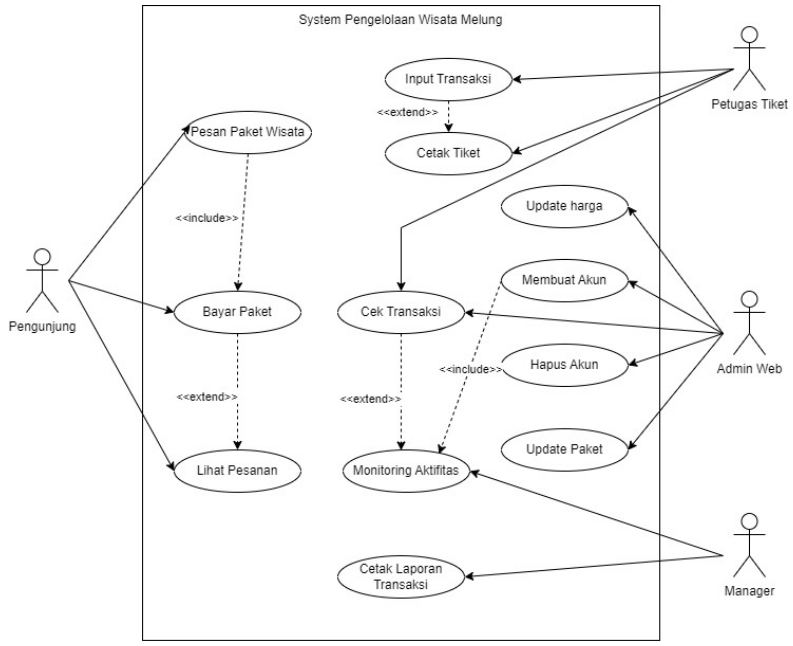

Figure 1. Use Case Diagram

This diagram shows actors such as Visitors, Ticket Agents, Web Admins, and Managers. Visitors can make bookings and payments for tour packages, while Ticket Agents and Web Admins manage transactions and administration. Managers are responsible for monitoring activity and generating transaction reports.

2.2. Research Instruments

The instrument used is a questionnaire based on the Kano method. The questionnaire employed in this study is designed according to the principles of the Kano model, consisting of two types of questions for each feature: functional questions and dysfunctional questions [12].

1) Functional Questions measure the level of user satisfaction when a feature is functioning well, such as "How do you feel if the new user registration process runs smoothly?".
2) Dysfunctional Questions assess user reactions when the feature does not work as intended, for example: "How do you feel if the new user registration process encounters issues?".

Each respondent is asked to provide answers on a scale: "Very Dissatisfied", "Dissatisfied", "Neutral", "Satisfied", and "Very Satisfied". These responses are

then processed to determine how each feature meets or fails to meet user expectations.

2.3. Data Collection

Data collection was conducted by distributing a questionnaire to 50 respondents who are users of the Bumdes Melung website. The selected respondents comprised tourists, staff, and administrators directly involved in using the e-administration features. Respondents were asked to answer a questionnaire consisting of 32 questions, which cover the main features of the e-administration system. The functionalities that form the basis of the questionnaire can be seen in Table 1.

Table 1. Questionnaire Table

No.	Feature	Question Type	Question
1	New User Registration	Functional	How feelings you If process Is new user registration going smoothly and easily?
2	New User Registration	Dysfunctional	How would you feel if the new user registration process failed or experienced disruptions?
3	Tour Package Booking	Fusional	How would you feel if the tour package booking feature worked well and was easy to use?
4	Tour Package Booking	Dysfunctional	How would you feel if the tour package booking feature experienced errors or was inaccessible?
5	Online Payment	Functional	How would you feel if the online payment process went smoothly without any obstacles?
6	Online Payment	Dysfunctional	How would you feel if the online payment transaction failed or experienced problems?
7	Service Reporting	Functional	How would you feel if service reports were accessible quickly and easily?
8	Service Reporting	Dysfunctional	How would you feel if reports were inaccessible or experienced delays?
9	Financial Transparency	Functional	How would you feel if financial information was displayed transparently and easily understood?
10	Financial Transparency	Dysfunctional	How would you feel if financial information was unclear or difficult to access?
11	Customer Service	Functional	How would you feel if customer service provided a quick response and adequate solutions?
12	Customer Service	Dysfunctional	How would you feel if customer service was unresponsive or provided unsatisfactory

No.	Feature	Question Type	Question
			solutions?
13	Search Feature	Functional	How would you feel if the website search feature worked well and helped you find information?
14	Search Feature	Dysfunctional	How would you feel if the website search feature did not provide relevant results or did not function?
15	Feedback Feature	Functional	How would you feel if you could easily provide feedback and receive an adequate response?
16	Feedback Feature	Dysfunctional	How would you feel if you could not provide feedback or did not receive a response?
17	Status Update Feature	Functional	How would you feel if your submission status was updated in real-time?
18	Status Update Feature	Dysfunctional	How would you feel if your submission status was not updated or was delayed?
19	Social Media Integration	Functional	How would you feel if the website integrated well with social media?
20	Social Media Integration	Dysfunctional	How would you feel if the social media integration did not work or experienced problems?
21	Email Notification Feature	Functional	How would you feel if you received timely and relevant email notifications?
22	Email Notification Feature	Dysfunctional	How would you feel if you did not receive email notifications or received irrelevant notifications?
23	Schedule Management Feature	Fusional	How would you feel if the schedule management feature worked well and facilitated time management?
24	Schedule Management Feature	Dysfunctional	How would you feel if the schedule management feature did not work well or was difficult to use?
25	Account Settings Feature	Functional	How would you feel if you could easily manage your account?
26	Account Settings Feature	Dysfunctional	How would you feel if account management was difficult or did not function?
27	Help and Support Feature	Functional	How would you feel if you received adequate help and support from the website?
28	Help and Support Feature	Dysfunctional	How would you feel if the help and support provided was inadequate or unavailable?
29	Mobile Access Feature	Functional	How would you feel if the website was easily accessible via mobile devices?
30	Mobile Access Feature	Dysfunctional	How would you feel if the website was not easily accessible via mobile devices?

No.	Feature	Question Type	Question
31	Data Security Feature	Functional	How would you feel if your data was secure and well-protected while using the website?
32	Data Security Feature	DisFunctional	How would you feel if your data was not well-protected or vulnerable to breaches?

The results of the questionnaire will be collected and processed to analyze the level of user satisfaction.

2.4. Data Processing and Analysis

Data processing is carried out through the following stages:

1) After the questionnaire data is collected, analysis is conducted using the Kano model by applying the Bloth formula to categorize each feature. Each feature will be classified into one of the six Kano method categories: Must-be, One-dimensional, Attractive, Indifferent, Reverse, or Questionable. The formula used to classify the data is the Bloth Formula [13]:

   If (OD + A + M) > (I + R + Q), then the feature is categorized into the category with the highest frequency of OD, A, or M.
   If (OD + A + M) < (I + R + Q), then the feature is categorized into the category with the highest frequency of I, R, atau Q.

   Where:
   a) OD = One-dimensional (Satisfaction increases with the improvement of feature quality)
   b) A = Attractive (Features that are desired but do not cause dissatisfaction if absent)
   c) M = Must-be (Essential features that, if absent, will lead to dissatisfaction)
   d) I = Indifferent (Features that do not significantly affect user satisfaction)
   e) R = Reverse (Features that are desired but are not present)
   f) Q = Questionable (Respondents' answers are inconsistent)

The results of the analysis from the Bloth formula are used to identify the category of each feature and understand which aspects need improvement to meet user expectations.

2) Questionnaire Results Graph Analysis: To provide a clearer visualization, the summarized responses will be displayed in a bar graph showing the distribution of categories for each feature.

2.5. Research Flow

The research flow following five steps as shown in Figure 2.

Figure 2. Research Flow

1) Feature Identification: Identifying the main features on the Bumdes Melung website based on the use case diagram.
2) Questionnaire Development: Creating a questionnaire based on the Kano model, containing functional and dysfunctional questions.
3) Data Collection: Distributing the questionnaire to 50 respondents and gathering their answers.
4) Data Analysis: Utilizing the Kano model and Bloth formula to categorize each feature.
5) Result Interpretation: Presenting the results in the form of tables and graphs to understand user satisfaction levels and recommend feature improvements.

With this explanation, it is hoped that the research method becomes clearer and the technical details of the Kano model analysis can be understood more comprehensively.

3. RESULTS AND DISCUSSION

This research evaluates user satisfaction regarding the e-administration features on the Bumdes Melung website using the Kano model. Data was collected through a questionnaire containing 36 questions; however, in this presentation, the "Business License Application" feature is excluded. The results for each feature will be discussed in tables and graphs to clarify the level of user satisfaction.

3.1. Feature Categorization Results Based on the Kano Model

Based on the questionnaire results, the website features were categorized using the Kano model into six categories: Must-be, One-dimensional, Attractive, Indifferent, Reverse, and Questionable. The following Table 1 the satisfaction percentages for several key features:

Table 1. The table form which used, table font is adjusting

Feature	M	O	A	I	R	Q	Total Respondents	Category
New User	5	10	8	7	0	0	50	One-dimensional

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Feature	M	O	A	I	R	Q	Total Respondents	Category
Registration								
Tour Package Booking	4	12	6	6	1	1	50	One-dimensional
Online Payment	8	10	6	5	0	1	50	Must-be
Service Reporting	6	8	7	7	0	2	50	One-dimensional
Financial Transparency	7	9	5	6	0	1	50	Must-be
Search Feature	3	11	10	6	0	0	50	Attractive
Status Update Feature	4	12	8	5	1	0	50	One-dimensional
Email Notification Feature	2	13	9	5	1	0	50	Attractive
Customer Service	6	9	7	5	0	1	50	One-dimensional
Feedback	5	8	6	6	0	2	50	One-dimensional
Social Media Integration	8	7	5	4	1	1	50	Must-be
Data Security	7	11	9	6	0	0	50	Attractive
Schedule Management	5	9	6	7	1	1	50	One-dimensional
Account Settings	6	10	7	5	0	2	50	One-dimensional
Help and Support	5	9	6	6	1	1	50	One-dimensional
Mobile Access	6	10	7	5	0	1	50	One-dimensional

Based on the Table 1, the majority of features fall into the One-dimensional and Must-be categories, indicating that these functionalities are directly related to user satisfaction levels. One-dimensional features, such as Tour Package Booking and Service Reporting, suggest that performance improvements in these features will directly enhance user satisfaction. Therefore, Bumdes Melung can focus on optimizing the performance of these features to ensure a better user experience. For instance, speeding up the tour package booking process or improving the responsiveness of service reporting could have a significantly positive impact.

On the other hand, Must-be features such as Online Payment and Financial Transparency are fundamental features that must function well for users to remain satisfied. Although further performance improvements in these features may not significantly increase satisfaction, the absence of inadequacy of these features can lead to considerable dissatisfaction. This means that web developers must ensure the stability and reliability of these features to avoid diminishing users' perceptions of the services provided.

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3.2. Discussion

The findings of this research align with several studies examining service quality in the context of e-administration. Research by [14] highlights the challenges in the adoption of e-government at the local government level in Indonesia and the positive impacts that can arise on public service satisfaction. Additionally, [15] conducted a systematic review of e-government adoption in developing countries and found that service quality significantly influences user satisfaction. Others concluded by. [16] that effective e-government implementation can enhance public satisfaction and encourage greater participation in public administration processes. Research by [17] revealed that organizational structure and culture have a significant impact on e-government implementation in Yogyakarta, affecting the improvement of public service quality. Lastly, [18] emphasized the importance of government capacity and e-government performance in enhancing the adoption of public services in rural areas.

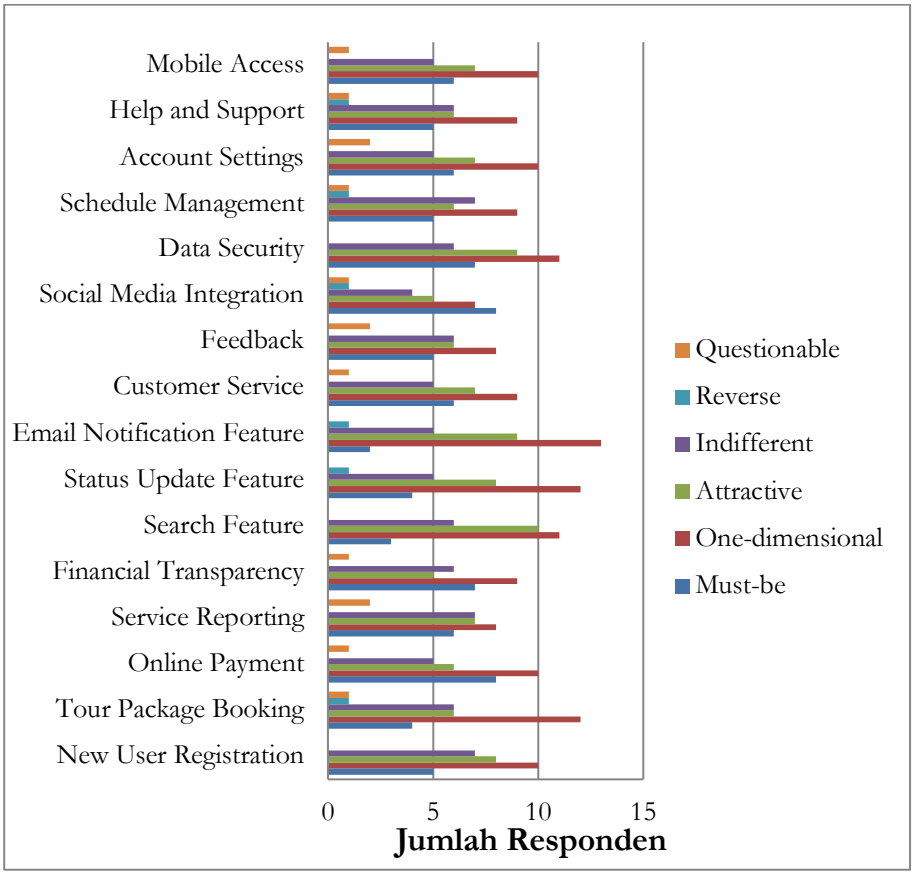

Figure 3. Questionnaire Results Summary

Based on Figure 3 in the summary of the questionnaire results, it can be seen that most key features, such as Financial Transparency and Online Payments, are categorized as Must-be. This indicates that users heavily rely on the existence and functionality of these features in their daily activities. The dysfunction of these features would lead to significant dissatisfaction, even though higher functionality may not significantly increase satisfaction.

Other features, such as Tour Package Booking and Service Reporting, fall into the One-dimensional category, meaning that any improvement in the performance of these features will result in increased user satisfaction. This underscores the importance of optimizing these features, as users will appreciate and feel more satisfied with faster, more accurate, and efficient services.

Thus, the findings of this research provide valuable insights for Bumdes Melung in determining future feature development priorities. The main focus should be on ensuring that Must-be features operate smoothly and enhancing One-dimensional features to provide a better user experience. These steps will not only improve user satisfaction but may also strengthen Bumdes Melung's competitiveness in the village's digital economy sector.

4. CONCLUSION

Based on the analysis results using the Kano model on 16 features of the Bumdes Melung e-administration system, most features fall into the One-dimensional and Must-be categories. Features in the One-dimensional category, such as Tour Package Booking, Service Reporting, and Status Update Feature, have a direct impact on user satisfaction, where improvements in the performance of these features will significantly enhance satisfaction. Features in the Must-be category, such as Online Payment and Financial Transparency, indicate that these features are basic needs that must function well for users to remain satisfied, although further enhancements do not yield a substantial increase in satisfaction. Additionally, Attractive features like the Search Feature and Email Notifications provide high added value when their performance is optimized, as they can offer a more enjoyable user experience. Therefore, future development should focus on improving the performance of features in the Must-be and One-dimensional categories, as well as maximizing Attractive features to enhance the overall appeal of the system. These findings also provide valuable insights for other Village-Owned Enterprises (BUMDes) in developing more effective digital administrative systems. Future research should expand to other villages and consider integrating advanced features such as real-time analytics to support more responsive decision-making in addressing community needs.

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