

Analysis of the Performance Evaluation of the Population and Civil Registration Service of Surabaya City using the Performance, Information, Economic, Control, Efficiency, Services (PIECES) Method

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Abstract: The research was conducted to meet the needs of users, namely the people of Surabaya City, for that it is necessary to have an analysis and evaluation of the measurement of the level of user satisfaction with the population administration information system at the Surabaya City Population and Civil Registration Service, namely the Klampid New Generation website. The data collection methods used were interviews, observations and questionnaires. In this study, the system evaluation method used the PIECES method consisting of 6 aspects of Performance (performance) Information (information), Economy (economy), Control (control), Efficiency (efficiency), and Service (service). Analyzing the questionnaire data, descriptive statistics were carried out to determine the characteristics of the data, validity and reliability tests to determine the quality of valid/accurate and reliable questionnaire data. normality test, correlation test and multiple linear regression test. Then evaluate the system by calculating the average questionnaire results to determine the level of satisfaction. The results of the study showed that the average level of satisfaction from the 6 aspects of the PIECES method was Performance 3.81 with the Satisfied category, Information 4.16 with the Very Satisfied category, Economic 3.95 with the Satisfied category, Control 4.06 with the Satisfied category, Efficiency 3.88 with the Satisfied category, and Services 3.87 with the Satisfied category. Based on the calculation results for each PIECES Framework variable, the total average value obtained was 3.95 with the description Satisfied, so it can be concluded that the Klampid New Generation website provides satisfactory results for its users. 5 categories of Satisfied and 1 Very Satisfied so that the Klampid New Generation population administration information system is quite effective and efficient for users, especially the people of Surabaya City and is a material for further development. The results of linear regression show that all 6 aspects of the PIECES method have a significant influence on user satisfaction.

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INTRODUCTION

The Surabaya Population and Civil Registration Office has the Klampid New Generation website as a tool for digital public services. In the era of digital transformation, website performance significantly determines the quality of public services and public satisfaction. The PIECES method (Performance, Information, Economic, Control, Efficiency, Service) is a comprehensive approach for evaluating an information system as a whole.

E-Lampid is one of the efforts of the Surabaya City Government in implementing electronic Government or E-government to achieve orderly population administration in Surabaya. Six population services can be processed online through E-Lampid, namely birth certificates, death certificates, marriage certificates, divorce certificates, migration certificates for moving in, and migration certificates for moving out. E-Lampid is closely related to the concept of E-government because it is an electronic-based population administration service (Septiani and Arundinasari, 2023).

Transparent and efficient population administration services are one of the key prerequisites in achieving good governance. Based on observations at the Surabaya Population and Civil Registration Office, it was found that the population administration website faces challenges in optimizing digital services, including issues of accessibility, limited information features, and the complexity of administrative processes that have not yet been fully integrated optimally. To address these challenges in digital services, this research aims to analyze the performance of the Klampid New Generation website using the PIECES method. Through this systematic approach, it is hoped that strategic recommendations can be formulated to improve the quality and accessibility of the digital platform for the Surabaya Population and Civil Registration Office.

The uniqueness of this research lies in its comprehensive approach using the PIECES method to evaluate the performance of the Klampid New Generation website. This study not only identifies the system's weaknesses but also generates an in-depth mapping of the potential development of more responsive, efficient, and community-needs-driven digital population services in Surabaya. With a systematic analysis covering performance, information, economics, control, efficiency, and service aspects, the research is expected to provide transformative recommendations for optimizing public information systems.

The objectives of this research are to address the identified issues by implementing an analysis and evaluation of the Klampid New Generation website using the PIECES method. The study aims to enhance user satisfaction in accessing population administration services and information through the website. Additionally, it seeks to assess the security level of the website to ensure that it is safe for public access. Through these objectives, the research intends to optimize the performance and accessibility of the digital platform for the Surabaya Population and Civil Registration Office.

METHOD

Research Materials and Equipment

In this research, several materials and devices were utilized, including both software and hardware components. The software used in this study is outlined in Table 3.1, which lists the operating system and data analysis application. The Windows 11 operating system is employed on the hardware, and IBM SPSS is used for data processing, specifically for validity and reliability tests. Table 3.1 highlights these software tools used for development, testing, and data analysis.

As for the hardware, the study utilized a laptop, specifically the HP Pavilion Gaming 15 model, This laptop is equipped with a 10th Gen Intel Core i5-10300H processor running at 2.40 GHz and has 8 GB of RAM. These hardware specifications are essential for running the software and supporting the overall research process.

Research object

The object of this research is focused on the residents of Surabaya and the administrators of the Klampid New Generation website at the Surabaya Population and Civil Registration Office. This group was chosen due to their crucial role in using and managing the website, which is key to providing information to the public. The research uses purposive sampling, targeting website users, including both the admin of the website and Surabaya residents who have accounts on the platform and have filled out questionnaires. The minimum sample size is 130 respondents, calculated as five times the number of statements from all the indicators used in the study. The data used is derived from interactions between users and the website admin, as well as related service publications. This allows for efficient analysis without the need for direct field data collection. The study aims to reflect the experiences and needs of both the public and the administrators, ensuring the relevance of the developed system in improving public service quality.

Research Stages

The research process begins with problem identification to ensure the study addresses relevant issues, followed by a literature review to deepen understanding. A questionnaire was then designed to measure public satisfaction with the Klampid New Generation website, with 100 respondents, including Surabaya residents and website admins. The study employs the PIECES method, with specific indicators for each variable: Performance, Information, Economic, Control, Efficiency, and Services.

Data collection included observation, interviews, and surveys, with a focus on the website's performance, accessibility, security, and user experience. The data collected was analyzed using descriptive statistics and various validity and reliability tests. Additionally, the study utilized normality and multicollinearity tests before hypothesis testing. The data from the questionnaires were processed and analyzed with IBM SPSS software. The user satisfaction levels were calculated using the PIECES method, with the results categorized into five satisfaction levels.

The final analysis evaluates the website based on the six PIECES criteria, offering

insights into how the Klampid New Generation website performs in terms of user satisfaction, efficiency, and service quality. The study provides actionable recommendations for improving the website's functionality and public service delivery.

RESULTS AND DISCUSSION

This section aims to explain and elaborate on the results that have been analyzed and described previously. The discussion seeks to identify, analyze, and even evaluate the government's system if needed. In this study, the researcher used the PIECES method to analyze the Klampid New Generation website, owned by the Surabaya Population and Civil Registration Office, with users of the website as the subjects through a questionnaire.

Based on the research results described earlier, male respondents dominated with 84 out of 130 total respondents, while the remaining respondents were female. Additionally, the majority of respondents were over 40 years old, with most working as employees. The PIECES method used in this research is a best practice in learning and development, aimed at understanding and improving care for individuals with complex physical and cognitive needs, as well as behavioral changes. To identify issues, an analysis of performance, information, economy, security, efficiency, and services was conducted. The PIECES analysis is important as it helps uncover underlying problems, rather than just symptoms of those issues.

In analyzing an information system, several aspects must be considered, including performance, information, economy, security, efficiency, and services. The PIECES method is used to identify existing problems, which can then be addressed to improve the system and ensure it functions properly to meet its goals.

Performance Variable

The performance variable is critical in assessing how reliable a system or application is in processing or generating information and achieving the expected goals. In this case, the performance variable has four indicators: the website's interface is easy for users to understand, the website works smoothly on both mobile devices and desktops without heavy animations, and it has a comprehensive set of features such as document submission, tracking submission status, and canceling requests. The average satisfaction score from 130 respondents is 4.05, indicating that user satisfaction in terms of performance is categorized as "satisfied."

Information Variable

The information variable pertains to the accuracy, relevance, and presentation of the information provided on the Klampid New Generation website, which is vital for decision-making by management and all stakeholders. The information variable has two indicators: the website provides accurate service information, and the information displayed is clear and easy to understand. The satisfaction score from the questionnaire is 4.0, indicating that users are "satisfied" with the information provided.

Economic Variable

The economic variable evaluates whether the interactive Klampid New Generation website's use is worthwhile in terms of its benefits to the institution and its users. There are two components considered in the economic evaluation: the alignment of service quality when using features such as document submissions (e.g., family cards, death certificates, birth certificates) and the fact that using the website is free of charge, requiring only internet access. The average satisfaction score for this variable is 4.95, indicating that users are "very satisfied" with the economic aspect of the website.

Control Variable

The control variable involves the system's security and the management of the website. A website or system is ineffective if it lacks proper controls and security, making it vulnerable to unauthorized access and damage. The control variable has three indicators: ease of use of the website's features, the security of personal data, and the ability to easily submit documents without the need to visit government offices. The average satisfaction score for the control variable is 4.05, indicating that users are "satisfied" with the control and security measures.

Efficiency Variable

The efficiency variable assesses the ability to perform tasks well, without wasting time, effort, or resources. In this study, the efficiency of the Klampid New Generation website is evaluated based on the time efficiency of document submissions, cost efficiency since no fees are charged, and the convenience of not needing to visit government offices. The average satisfaction score for the efficiency variable is 4.06, indicating that users are "satisfied" with the website's efficiency.

Services Variable

The services variable refers to the quality of interaction between the website and its users. In this study, services are evaluated based on how quickly and accurately the website performs its tasks, including the proper handling of document submission requests. The satisfaction score from the questionnaire is 4.17, indicating that users are "satisfied" with the services provided by the website.

Based on the final scores for each PIECES variable, the smallest score is 4.05, which comes from the control variable, while the highest score is 4.95 for the economic variable, indicating that users are "very satisfied" with the economic aspects of the website. The overall average satisfaction score is 4.21, which places the website in the "satisfied" category, reflecting that the Klampid New Generation website plays an essential role in improving service quality and providing a positive user experience.

CONCLUSION

The evaluation of the Klampid New Generation website as a population administration information system reveals that it has significant advantages. Based on the responses from 130 participants, the system has successfully met user satisfaction, as indicated by the PIECES method. The evaluation results show that the system's performance in various aspects—such as performance, information, economy, control, efficiency, and services—satisfied the users, with an overall satisfaction score of 3.95, placing it in the "satisfied" category. This indicates that the website is effective and efficient for users, particularly for the citizens of Surabaya, and provides a foundation for further development.

The F-test results indicate that the PIECES Framework variables have a significant overall effect on user satisfaction, as evidenced by the significance level of 0.000, which is less than 0.05. Thus, the hypothesis is accepted, confirming that the independent variables—Performance, Information, Economy, Control, Efficiency, and Services—have a significant impact on the dependent variable, User Satisfaction. Moreover, the multiple regression analysis revealed that Performance, Information, and Services significantly influenced User Satisfaction, while the Economic, Control, and Efficiency variables did not show a significant impact.

Recommendations

Based on the findings and discussions in the study, several recommendations can be made. The Surabaya Population and Civil Registration Office should continue to enhance the quality of its services, both online and offline, by innovating and regularly updating the Klampid New Generation website. Providing up-to-date information is crucial to improving accessibility and transparency for the public.

For future researchers, it is recommended to further explore user experiences with the services to gain deeper insights. Expanding the sample to include more respondents from diverse social backgrounds will provide a more comprehensive understanding of user satisfaction and needs. Additionally, conducting long-term studies would be valuable to assess the impact of service improvements over time, helping to understand how public satisfaction evolves with ongoing changes.

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