# The Effectiveness of ASIAP Digital Innovation in the Management of SPPT PBB in Pekanbaru City: DAIGUSI Analysis of Innovation and User Satisfaction

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## Article Information

## A B S T R A C T

Digital innovation in public services is increasingly becoming a primary need for efficient and responsive governance. One such innovation is ASIAP (Aplikasi Antar SPPT PBB), a digital system developed by the Pekanbaru City Regional Revenue Agency (Bapenda) to distribute Tax Payable Notification Letters (SPPT) online. However, as a silent innovation, ASIAP is not widely known, despite its significant contribution to regional tax management. This study aims to assess user satisfaction with the ASIAP application and analyze the accompanying innovation diffusion process. The study used a mixed-method approach with quantitative and qualitative methods. Data collection was conducted by distributing questionnaires to ten ASIAP user employees, based on five dimensions in the End-User Computing Satisfaction (EUCS) model: content, accuracy, format, ease of use, and timeliness. In-depth interviews were also conducted with several Bapenda employees to explore the innovation adoption process based on Rogers' innovation diffusion theory. The results showed that users found the ASIAP application quite satisfactory, particularly in terms of information accuracy and ease of use. However, aspects of information up-to-dateness and visual presentation still require improvement. The ASIAP diffusion process is considered to have progressed gradually through five stages of innovation adoption, supported by the role of internal change agents and informal communication between employees. In conclusion, ASIAP is a potential digital innovation for strengthening information technology-based public services at the regional level, but it still requires further development to achieve broader and more equitable benefits.

## 1. Introduction

Digital transformation in governance is inevitable in the era of the industrial revolution 4.0 and society 5.0. Central and regional governments are required to continue to innovate in providing fast, accurate, and transparent public services. One important aspect in public services is the regional taxation sector, including Land and Building Tax (PBB), which is a source of Regional Original Income (PAD). The effectiveness of PBB management is crucial for the sustainability of regional development. The acceptance of digital technology in the public sector is strongly influenced by the perception of ease and benefits felt by end users [1]. The success of digital transformation is highly dependent on organizational readiness and top management support [2]. The adoption of e-government in developing countries is often hampered by low digital infrastructure and

literacy [3]. Social and cultural factors also have a significant influence in accelerating or inhibiting the diffusion of digital- based public service innovations [4]. Public sector innovation requires synergy between policy, technology, and changes in employee behavior [5].

In Pekanbaru City, the management of Land and Building Tax Notices (SPPT PBB) remains fraught with various administrative and technical challenges. These include uneven SPPT distribution, outdated taxable data, and limited access to information for taxpayers. Amidst these complexities, the Pekanbaru City Regional Revenue Agency (Bapenda) developed a digital innovation called ASIAP (SPPT PBB Application). This application is designed to digitize the management and distribution of SPPT PBB for faster and more accurate results.

Interestingly, this innovation is not widely known to the public or widely discussed in academic discourse or public policy. Therefore, ASIAP deserves to be called a "silent innovation" — an innovation that works behind the scenes but has a significant impact on the efficiency and effectiveness of public services in the field of regional taxation. Public trust in government institutions is a major determinant in the adoption of digital services [6]. Compatibility and ease of use are key drivers in the adoption of government applications [7]. Resistance to change remains a classic obstacle in the implementation of digital innovation in the public sector [8]. Adaptive governance is crucial to ensure the sustainability of digital innovation in government [9]. Collaboration across units within government organizations can accelerate the digitalization process [10].

Despite its significant potential for improving the quality of regional tax services, ASIAP has not received adequate exposure or scientific evaluation. The success of a public innovation is measured not only by its existence but also by the extent to which it is adopted, accepted, and perceived as beneficial by stakeholders. Therefore, an in-depth study is needed to determine user perceptions, effectiveness, and satisfaction with this application.

Furthermore, understanding the factors influencing ASIAP adoption is crucial for expanding the replication of similar innovations to other regions. This research contributes to the literature on digital public service innovation and the assessment of local government application-based information systems. Based on the background above, the research questions are as follows:

1. How is the process of diffusion of ASIAP application innovation in the Pekanbaru City Bapenda environment?

2. What is the level of user satisfaction with the ASIAP application based on *the End-User Computing Satisfaction* (EUCS) model?

3. What are the supporting and inhibiting factors in the use of ASIAP as a tool to assist in managing SPPT PBB?

Then this research aims to:

1. Analyze the process of ASIAP innovation diffusion in Pekanbaru City using the Diffusion of Innovation theory approach.

2. Assess the level of satisfaction of ASIAP application users using the EUCS model.

3. Identify challenges and opportunities for further development of the ASIAP application in the future.

The benefits of this research can be seen from two sides, namely theoretical benefits and practical benefits. Theoretically, this research contributes to the development of studies on innovation in public services, particularly in the context of local governments facing the demands of digital transformation. This research also expands the scope of the application of the Diffusion of Innovation theory and *the End-User Computing Satisfaction* (EUCS) model in the context of public sector digital applications, so that it can serve as a reference for the development of similar studies in the future. Meanwhile, practically, the results of this research can provide direct input to the Regional Revenue Agency (Bapenda) of Pekanbaru City in its efforts to develop

and optimize the ASIAP application to be more adaptive to user needs. In addition, this research can serve as a reference for other local governments wishing to adopt or develop similar innovations in the management of Land and Building Tax (PBB). Equally important, this research is also expected to increase public understanding of the benefits of the ASIAP application and encourage their active participation in the use of digital technology to support more transparent and efficient governance.

This study uses a mixed methods approach with quantitative data from an EUCS-based questionnaire and qualitative data from in-depth interviews. Rogers' diffusion of innovation theory is used as an interpretive framework to explain how the acceptance and spread of the ASIAP application occurs in an organizational environment, including the role of trust and e-WOM in the digital innovation adoption process. The success of digital innovation is greatly influenced by active user involvement from the early stages of development [11]. Perceptions of risk and data security are important factors in the decision to adopt government digital applications [12]. A high level of trialability in new applications can increase user interest in trying and adopting innovations [13]. Continuous training and socialization are crucial in improving the digital literacy of government employees [14]. Bureaucratic barriers and rigid organizational structures often slow the diffusion of digital innovations [15] .

In this study, the innovation diffusion theory used refers to the theory developed by Everett M. Rogers. Rogers (1983) defines innovation diffusion as a process in which an innovation is communicated through certain channels over a certain period of time among members of a particular social system [Rogers, 1983] [16]. This theory provides an understanding of how information, including through *electronic word of mouth* (e-WOM), spreads among the public and helps them in making decisions regarding the adoption of innovations, especially for users of the ASIAP application. Therefore, the use of Rogers' theory provides a strong theoretical framework in analyzing the process of information and innovation dissemination in the public service environment.

In the context of this research, trust *can* be both a driving and inhibiting factor in the adoption of digital innovation by consumers of tax services, particularly users of the ASIAP application [Ferreira et al., 2022] [17]. The use of Rogers' theory provides a strong theoretical framework for analyzing the process of information dissemination and innovation in the public service environment. This research aligns with the vision and mission of the study program, which is oriented towards developing superior human resources in the fields of public administration and digital government technology. By studying and evaluating application-based public service innovations, this research is a tangible manifestation of academic contribution to strengthening regional governance.

## 2. Method

This study employed a mixed methods approach, combining quantitative and qualitative methods, to obtain a more comprehensive picture of the ASIAP application's innovation in managing SPPT PBB (land and building tax) in Pekanbaru City. This approach was chosen to capture both numerical aspects, such as user satisfaction levels, and contextual aspects, such as the adoption process and implementation challenges of the innovation.

### 2.1. Research Subjects

The subjects in this study consisted of two main groups. First, internal users, namely employees of the Pekanbaru City Regional Revenue Agency (Bapenda) who were directly involved in the management, development, or utilization of the ASIAP application. Second, external users, namely members of the public or taxpayers who had previously used the ASIAP application to access SPPT PBB information.

### 2.2. Types of research

This research is descriptive and exploratory with a quantitative-qualitative approach. The descriptive approach is used to systematically describe phenomena related to user satisfaction levels and the innovation diffusion process. Meanwhile, the exploratory approach is used to delve deeper into user experiences and perceptions that may not have been extensively researched before.

The quantitative approach in this study was conducted through the distribution of a questionnaire designed using a Likert scale. This questionnaire was distributed to ASIAP app users over the past week. Respondents were selected using a purposive sampling technique, with the criteria being ASIAP users, including access to digital promotions and e-WOM information.

Questionnaire data was used to measure public perceptions of variables such as e-WOM, digital promotions, and trust. The results of this quantitative data collection were analyzed using descriptive and inferential statistics to determine the relationships and influences between variables in the research model.

To strengthen the findings from the quantitative method, a qualitative approach was also conducted through in-depth interviews. The informants in this study were purposively selected, namely ASIAP users. The interviews focused on their understanding of digital promotion strategies and their perceptions of trust in using the ASIAP app.

Interview results were used to delve deeper into how digital promotions and e-WOM influence user intentions to use the app. These qualitative findings were processed using a thematic approach and used to enrich the interpretation of the quantitative data, providing a more comprehensive and in-depth picture of the phenomenon under study.

### 2.3. Research Object Limitations

The research object is limited to the use and implementation of the ASIAP application as an innovation in the management and distribution of Land and Building Tax Payable Notification Letters (SPPT PBB) within the Pekanbaru City Regional Revenue Agency (Bapenda). The study focuses on how the application was developed, its adoption process, and how users assess its quality and usability.

### 2.4. Data source

This research uses two types of data sources, namely:

- Primary data, obtained directly through questionnaires and interviews with 130 Bapenda employees and ASIAP users.

- Secondary data, obtained from Bapenda internal documentation, ASIAP application development reports, user statistics data, and previous literature or studies relevant to the topic.

### 2.5. Data collection technique

Questionnaire – Used to measure user satisfaction with the ASIAP application based on the *End-User Computing Satisfaction* (EUCS) model. The questionnaire is structured around five main dimensions: content, accuracy, format, ease of use, and timeliness.

In-depth interviews – Conducted with several key employees at the Pekanbaru City Bapenda to dig deeper into the background, innovation process, and obstacles in implementing ASIAP.

### 2.6. Data Analysis Techniques

Quantitative Analysis – Data from the questionnaire was analyzed using descriptive statistics. A Likert scale was used to measure respondents' satisfaction levels, which were then analyzed as an average score per EUCS dimension.

Qualitative Analysis – Data from interviews and observations were analyzed using a thematic analysis approach to identify important patterns in the innovation adoption process. This analysis utilized Rogers'

Diffusion of Innovation theory [Rogers, 1983] as an interpretive framework for the ASIAP innovation diffusion process within the organization.

## 3. Results and Discussion

### 3.1. ASIAP Application Overview

The general program implemented during the internship at the Regional Revenue Agency (Bapenda) of Pekanbaru City involved a series of observational activities focused on understanding and observing the ASIAP application (PBB Inter-SPPT Application) in improving the efficiency of the distribution of Tax Payable Notification Letters (SPPT). This program aims to provide an overview of information technology-based governance, particularly related to the management of regional revenue through a digital system. To support understanding of the internship program, the following displays the main interface of the ASIAP Application that was the object of observation [18].
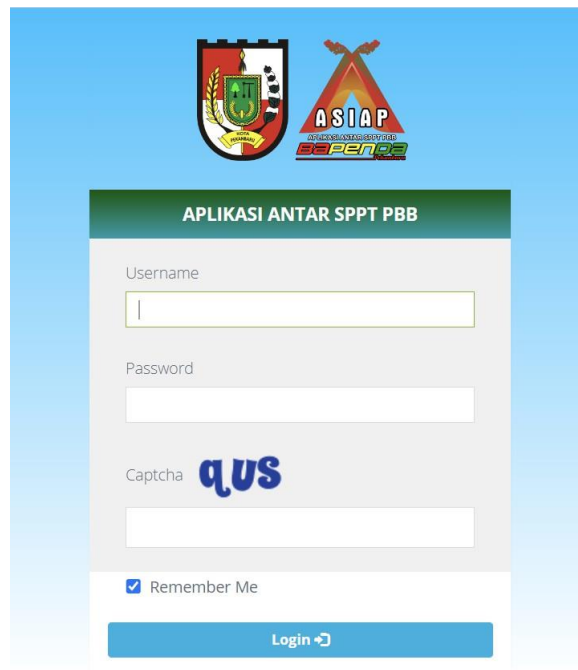


**Figure 1.** Main User Interface of the ASIAP Application

The specific program implemented during the internship focused on observing and analyzing the use of the SDT (Debt List) feature in the ASIAP (Asset and Tax Information System Application) application. This focus was carried out to gain a deeper understanding of how information technology is utilized in the tax administration process, particularly in the management and monitoring of PBB-P2 receivables in Pekanbaru City.

During the internship, Praja Madya studied the system workflow, interacted directly with the application, and reviewed technical documentation to understand the mechanisms of the available features [19]. One of the main features observed was the "SDT Detail Data", which is used by the coordinator to monitor the results of field activities carried out by officers and is shown in Figure 2.
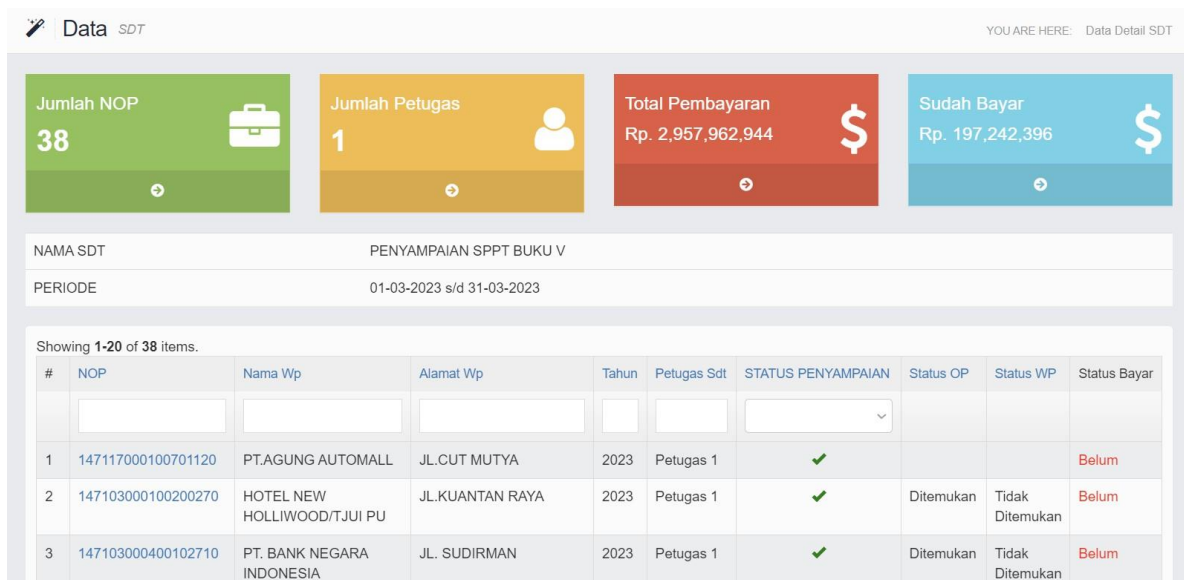
**Figure 2.** SDT Data Detail Feature in the ASIAP Application

The observed feature display presents summary information on SDT activities in a certain period, including:

o   Number of NOP

Displays the total tax objects (NOP) targeted in SDT activities.

o   Number of Officers

Inform how many field officers are involved.

o   Total Payment

This is the total nominal receivables from all NOPs in the activity.

o   Already Paid

Displays the total payments realized during the SDT period. In addition, there is a table detailing data for each Taxpayer Identification Number (NPWP), including taxpayer name (WP), address, tax year, submission status, tax object status, taxpayer status, and payment status (paid or unpaid). This feature allows officers and coordinators to verify, validate, and follow up on uncollected receivables. The following display visually illustrates how the system presents SDT activity data. This feature helps expedite the activity monitoring process, minimizes the possibility of human error in recording, and increases transparency in the process of submitting tax obligations to the public.

### 3.2.   Research Respondent Profile

Internal respondents were Bapenda employees directly involved in the operational process of the ASIAP application, either as users, managers, or coordinators of field activities. Meanwhile, external respondents were members of the public who were tax-paying citizens. A total of 130 internal and external respondents participated in the questionnaire and interviews. Each dimension was measured using several statements or indicators (between two and three per dimension), and answered using a Likert scale (1 = strongly disagree, 5 = strongly agree).

### 3.3. User Satisfaction Measurement Results (EUCS)

In an effort to assess the extent of user satisfaction with the ASIAP application, this study uses the *End-User Computing Satisfaction* (EUCS) model developed by Doll and Torkzadeh. This model has five main dimensions that reflect user perceptions of a system or application, namely: Content (C), Accuracy (A), Format (F), Ease of Use (E), and Timeliness (T). Each dimension is represented by several statement indicators that are then used as items in the questionnaire. Table 1 below displays a complete list of questionnaire statements used in this study, accompanied by abbreviations that represent each dimension of the EUCS.

**Table 1.** EUCS Questionnaire Statements

| EUCS abbreviation | Questionnaire |
|---|---|
| C1 | Information in READY relevant with my needs . |
| C2 | Information provided Enough complete. |
| C3 | Information easy understood And direct to core problem. |
| A1 | Data Which served by READY accurate And trusted. |
| A2 | I seldom find error information in application This. |
| F1 | Appearance interface READY make it easier I in read information. |
| F2 | Information arranged neat And logical. |
| F3 | Design application interesting in a way visual. |
| E1 | Application easy used even though by common people . |
| E2 | I No need Lots help For understand method ASIAP work. |
| E3 | Navigation application Enough intuitive. |
| T1 | Information in READY always updated on time. |
| T2 | I Can access data Which I need without have to wait long. |

These statements were then used to measure user satisfaction by distributing a questionnaire to ten respondents, consisting of internal users of the ASIAP application, namely employees of the Pekanbaru City Regional Revenue Agency (Bapenda). Each respondent was asked to provide a score for each statement using a Likert scale of 1–5, where 1 indicates the highest level of dissatisfaction and 5 indicates the highest level of satisfaction. Table 2 below shows the responses from the ten respondents to each item in the EUCS questionnaire.

**Table 2.** EUCS Respondent Data

| Dimensions EUCS | R1 | R2 | R3 | R4 | R5 | R6 | R7 | R8 | R9 | R10 |
|---|---|---|---|---|---|---|---|---|---|---|
| C1 | 5 | 5 | 4 | 3 | 5 | 3 | 3 | 4 | 3 | 5 |
| C2 | 4 | 3 | 3 | 4 | 4 | 3 | 5 | 3 | 3 | 3 |
| C3 | 4 | 3 | 4 | 5 | 5 | 4 | 5 | 3 | 3 | 4 |
| A1 | 4 | 4 | 3 | 4 | 5 | 5 | 3 | 3 | 5 | 3 |
| A2 | 3 | 5 | 5 | 5 | 3 | 3 | 3 | 3 | 4 | 5 |
| F1 | 3 | 5 | 4 | 4 | 5 | 5 | 4 | 4 | 3 | |
| F2 | 4 | 5 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 4 |
| F3 | 4 | 5 | 5 | 3 | 3 | 5 | 4 | 3 | 5 | 3 |
| E1 | 5 | 4 | 5 | 5 | 5 | 4 | 3 | 3 | 3 | 5 |
| E2 | 4 | 3 | 5 | 5 | 5 | 4 | 4 | 4 | 3 | 3 |
| E3 | 5 | 4 | 3 | 5 | 5 | 3 | 5 | 5 | 4 | 4 |
| T1 | 4 | 5 | 4 | 4 | 5 | 4 | 3 | 5 | 3 | 4 |
| T1 | 3 | 3 | 5 | 5 | 5 | 5 | 4 | 3 | 4 | 5 |

The data in this table was further processed to determine the average satisfaction rating for each EUCS dimension. The results of this processing will provide a quantitative overview of which aspects are considered positive by users and which aspects need improvement. Therefore, the results of this analysis are expected to serve as a basis for further development and optimization of the ASIAP application by the Pekanbaru City Regional Revenue Agency (Bapenda).

### 3.3.1. Content Dimension (C)

The Content dimension in EUCS refers to the extent to which the content or information presented by a system meets user needs, in terms of relevance, completeness, and clarity. This aspect is crucial because information is the core of digital services, especially in the context of public applications like ASIAP. In this study, three statements represent the Content dimension:

*C1: The information in ASIAP is relevant to my needs.*

*C2: The information provided is quite complete.*

*C3: Information is easy to understand and gets straight to the point.*

Based on data from ten respondents, the average score for indicator C1 was 4.0; C2 was 3.5; and C3 was 4.0. The overall average for the Content dimension was 3.83, indicating that users were quite satisfied with the information provided by the ASIAP application.

Relatively high scores on C1 and C3 indicate that the information provided by ASIAP is generally considered relevant and easy to understand. However, a slightly lower score on C2 indicates that there is still room for improvement in the comprehensiveness of the information provided, for example by adding more detailed descriptions or technical instructions for certain features.

This statement was also supported by the results of an interview with an employee, who stated that several users often asked follow-up questions regarding the data that appeared, especially when there were technical tax terms that were unfamiliar.

Based on these findings, it is recommended that the ASIAP development team review the completeness of the information displayed in the application interface, and consider adding tooltips, user guides, or video tutorials to improve user understanding and satisfaction with the application content.

### 3.3.2. Dimension Accuracy (A)

The Accuracy dimension in the EUCS model refers to the extent to which users perceive the information or data provided by the system to be accurate, precise, and trustworthy. In the context of public service applications such as ASIAP, data accuracy is crucial, especially since the information displayed is directly related to citizens' financial obligations, namely Land and Building Tax (PBB). Inaccurate information can lead to confusion, complaints, or even potential disputes between the public and the government. In this study, the Accuracy dimension is represented by two questionnaire statements:

*A1: The data presented by ASIAP is accurate and reliable.*

*A2: I rarely find any misinformation in this app.*

From the data obtained through a questionnaire from ten respondents, the average score was as follows:

*The average score for A1 is 4.0,*

*The average score for A2 was 4.1,*

So the overall average of the Accuracy dimension is 4.05.

This score indicates that respondents are generally quite satisfied with the accuracy of the data displayed by the ASIAP app. This score also falls into the high category on the 1–5 Likert scale, indicating that users' confidence in the reliability of the app's data is quite good.

Furthermore, these findings align with interviews with technical staff at the Pekanbaru City Regional Revenue Agency (Bapenda), who stated that ASIAP data is drawn directly from the official Regional Tax Information System (SIPD) database and is updated regularly. However, officials also acknowledged the possibility of input errors or delays in updates in certain cases, particularly when data is obtained from external sources, such as field verification results or changes in taxpayer status.

Although the level of satisfaction with accuracy is relatively high, these results still leave room for evaluation to ensure long-term consistency. As a recommendation, the ASIAP management team is advised to add a feature for user data error reporting, so that any discrepancies in information can be promptly and responsively corrected. Furthermore, transparency regarding data sources and the time of the last update will also increase user trust in the system. Thus, the results of the Accuracy dimension measurement indicate that

the ASIAP application has provided fairly accurate and reliable information to its users, although improvements are still needed in terms of the validation system and user involvement in error detection.

### 3.3.3. Format Dimension (F)

The Format dimension in the *End-User Computing Satisfaction* (EUCS) model focuses on the extent to which the layout, information presentation structure, and visual elements of a system or application support user convenience in accessing information. Good formatting is not only about aesthetics, but also concerns readability, display order, and interface consistency. In the context of the ASIAP application, a neat and logical display is crucial because users come from various backgrounds, including employees who must work efficiently and quickly. Assessment of this dimension is carried out through three questionnaire indicators, namely:

*F1: The ASIAP interface makes it easy for me to read the information.*

*F2: Information is neatly and logically arranged.*

*F3: The application design is visually appealing.*

Based on data from ten respondents, the average scores were as follows:

*F1: 4.1*

*F2: 3.9*

*F3: 4.0*

Thus, the overall average of the Format dimension is 4.0, which reflects a high level of user satisfaction with the format and visual appearance aspects of the ASIAP application.

This positive response indicates that the ASIAP application has successfully delivered a user-friendly and informative interface. This was reinforced by observations during the internship, which revealed that the ASIAP interface was designed using soft colors, a clear menu structure, and representative icons that make it easy for users to understand the function of each feature.

However, an interview with a Bapenda employee revealed that there is still room for improvement in the SDT data recap section, particularly in the tabular format, which could be made more responsive and adaptable to various screen sizes. Several users also suggested a dark mode feature or a high-contrast display option to improve visual comfort, especially when working for long periods.

So, while satisfaction with the application format is considered good, optimizing the visual design and improving interface accessibility still needs to be considered in future development. This aligns with the principle of inclusivity in digital public service innovation, which prioritizes user convenience for all users.

Thus, the Format dimension shows that ASIAP has succeeded in providing a display that supports readability and information navigation, although there are still several technical aspects that can be improved to better accommodate the needs of diverse users.

### 3.3.4. Ease of Use (E) Dimension

The Ease of Use dimension in the *End-User Computing Satisfaction* (EUCS) model measures the extent to which users find the application or system easy to understand and use, even for individuals without a technical background. This ease of use factor is crucial in determining whether an application is well-received by its users, especially for public service-based applications such as ASIAP, which have diverse users, including lay users who may not be familiar with technology. The Ease of Use dimension is measured through three questionnaire indicators, namely:

*E1: The application is easy to use even by lay people.*

*E2: I don't need much help to understand how ASIAP works.*

*E3: The app navigation is quite intuitive.*

From the measurement results, the average score for each indicator was obtained as follows:

*E1: 4.4*

*E2: 4.0*

*E3: 4.1*

Thus, the overall average of the Ease of Use dimension is 4.17, which indicates a high level of user satisfaction with the ease of use of the ASIAP application.

These results indicate that users find the ASIAP app quite easy to use, even if they lack in-depth technical knowledge. This is reflected in the high scores for indicators E1 and E3, confirming that the ASIAP app provides an intuitive and easy-to-understand interface for novice users. Indicator E2, which also scored quite high, indicates that most users had no difficulty understanding how the app works without requiring much assistance.

However, interviews with several Bapenda employees revealed that while the ASIAP application is relatively easy to use, there are still some complaints regarding the data verification process, which can sometimes be confusing for first-time users. Therefore, while the application is user-friendly enough for novice users, it is recommended that more interactive guides or tutorials be provided, especially for features that require manual user input.

As a recommendation for further development, simplifying some complex processes and adding help features such as FAQs or chatbots could be very helpful to make navigation easier for new users or users with limited technical knowledge.

Overall, the Ease of Use dimension indicates that the ASIAP app has met its users' expectations in terms of ease of use, but improvements in providing clearer and more accessible help would further strengthen the app's acceptance among a wider user base.

### 3.3.5. Timeliness Dimension (T)

The Timeliness dimension in the *End-User Computing Satisfaction* (EUCS) model measures the extent to which information or services provided by an application are available on time and accessible without significant delay. In the context of the ASIAP application used for tax management, the timeliness factor is crucial because delays in information delivery or data access can disrupt administrative processes and affect user satisfaction, especially for Bapenda employees who require real-time data for tax management and monitoring.

The Timeliness dimension is measured through two questionnaire indicators, namely: T1: Information in ASIAP is always updated on time.

*Q2: I can access the data I need without having to wait long.*

Based on the results of measurements using a questionnaire, the average score for each indicator was obtained as follows:

*T1: 4.3*

*T2: 4.2*

Thus, the overall average of the Timeliness dimension is 4.25, which indicates that users feel quite satisfied with the timeliness of information delivery in the ASIAP application.

A high score on this dimension indicates that the ASIAP application is capable of providing relevant data and information in a timely manner. This is reinforced by observations, which revealed that data updates are routine and in real time, ensuring users have no difficulty accessing the latest data when needed.

However, although the majority of respondents gave this indicator a high score, there are several caveats. Interviews with several Bapenda employees revealed that there are occasional delays in updating data from the field, particularly related to reporting of tax verification activities, which are not always immediately recorded in the system. This could be due to technical constraints or limited time in the field. Therefore, it is recommended that the ASIAP system have a mechanism to accelerate automatic data updates, such as integration with other systems that update payment statuses or changes in tax information directly, without going through a time-consuming manual process. The use of cloud computing technology or a real-time data streaming system could be an option to expedite the data update process within the application.

In conclusion, the Timeliness dimension shows that the ASIAP application successfully provides timely information according to user needs, although there is still room for improvement in terms of automating data updates and reducing delays in accessing information.

### 3.3.6. Average Score Analysis and Interpretation of Satisfaction Level

After measuring the level of user satisfaction of the ASIAP application using the *End-User Computing Satisfaction* (EUCS) model, the data obtained from the questionnaire were used as the basis for analyzing and evaluating the overall level of satisfaction. Each dimension of the EUCS—Content (C), Accuracy (A), Format (F), Ease of Use (E), and Timeliness (T)—was scored by respondents, which were then averaged to obtain a general overview of user perceptions of the ASIAP application. The average results for each dimension are as follows:

*Content Dimension (C)  : 4.1*

*Dimension Accuracy (A)        : 4.0*

*Format Dimension (F)   : 4.0*

*Ease of Use (E) Dimension      : 4.17*

*Timeliness Dimension (T)      : 4.25*

Based on these results, it can be concluded that the overall level of user satisfaction with the ASIAP application is high. The average score for each dimension is above 4, indicating that users are quite satisfied with various aspects of the application. Overall, this score reflects the ASIAP application's good performance in meeting user needs and expectations regarding information technology-based public services. The interpretation of each dimension based on the average results obtained is as follows:

1. Content Dimension (C)

   With an average score of 4.1, the Content dimension indicates that users perceived the information presented in the ASIAP app as relevant to their needs and quite comprehensive. However, there is some room for improvement in the accuracy and completeness of the information to better suit different user needs.

2. Accuracy Dimension (A)

   An average score of 4.0 on the Accuracy dimension indicates that users feel the data presented by the ASIAP app is quite accurate and that misinformation is rare. However, some user feedback suggests there is room for increased data verification to ensure greater accuracy.

3. Format Dimension (F)

   With an average score of 4.0, the Format dimension indicates that the ASIAP app interface is quite easy to read and well-structured. While the app design is generally considered good, some suggestions for improvement are in the accessibility aspect, for example, by increasing the app's responsiveness on different devices.

4. Ease of Use (E) Dimension

The Ease of Use dimension scored an average of 4.17, indicating that the ASIAP app is easy to use, even for those without technical backgrounds. However, some users suggested improving the help feature or providing clearer tutorials to improve understanding and navigation for new users.

5. Timeliness Dimension (T)

An average score of 4.25 on the Timeliness dimension indicates that the ASIAP application successfully provided information in a timely manner and without significant delays. While access was generally fast, there were some complaints related to delays in data updates, which could be addressed by optimizing the data update system and process [20].

### 3.4. ASIAP Innovation Diffusion Process

The innovation diffusion process is the stage in which an innovation is introduced, adopted, and disseminated within an organization or community [6]. In the context of the ASIAP application implemented at the Pekanbaru City Regional Revenue Agency (Bapenda), this innovation diffusion is very important because its implementation involves changes to systems and procedures directly related to the efficiency of managing Tax Payable Notification Letters (SPPT). This diffusion process can be further understood through two main aspects: the stages of innovation adoption and the characteristics of the innovation itself.

#### 3.4.1. Innovation Adoption Stages

The process of ASIAP innovation diffusion in Bapenda Pekanbaru City goes through five stages as proposed by Rogers in the theory of innovation diffusion: knowledge, persuasion, decision, implementation, and confirmation.

1. Knowledge

In this first phase, Bapenda employees begin to receive information about the ASIAP application. This information can come from various sources, including presentations, training, or references from other agencies that have previously implemented similar applications. The knowledge provided includes the application's purpose, its benefits in PBB management, and how to use it. The involvement of change agents is crucial at this stage to ensure that all parties involved understand the application's purpose and potential.

3. Persuasion

At this stage, employees begin to feel interested in using ASIAP after understanding the benefits and convenience offered by the application. The persuasion process involves strengthening the belief that ASIAP will benefit them, both in terms of work efficiency and data accuracy. Through training or trials, this belief is further strengthened, and employees become more convinced that ASIAP is an innovation worth adopting.

4. Decision

At the decision stage, each individual or group within Bapenda decides whether to adopt or reject ASIAP. Several factors influence this decision, including familiarity with the application, comfort level with new technology, and support from management. The decision to adopt the application is also influenced by the perceived impact it could have on their daily work.

5. Implementation

The implementation phase is when the ASIAP application begins to be used in the Pekanbaru City Regional Revenue Agency (Bapenda) operations. At this stage, employees begin operating the application to distribute and verify SPPTs. Some employees may require additional training or technical guidance,

making the role of change agents crucial in providing the necessary support during the adaptation process to the new system.

6. Confirmation

After implementation, the confirmation stage occurs when employees feel confident in their decision. They feel that using ASIAP has brought positive changes, both in terms of time efficiency, data accuracy, and ease of use. At this stage, user feedback is collected to evaluate the application's performance, and if any issues are identified, corrective measures can be implemented immediately.

### 3.4.2. Characteristics of Innovation

According to the theory of innovation diffusion, there are five main characteristics that influence the adoption of an innovation: relative advantage, compatibility, complexity, trialability, and observability. These characteristics can also be used to assess the success of the ASIAP innovation diffusion at the Pekanbaru City Regional Revenue Agency (Bapenda).

1. Relative Advantage

ASIAP offers significant advantages in terms of time efficiency and reduced human error in SPPT distribution. Compared to previously used manual methods, ASIAP offers ease in monitoring tax payment status and expedited administrative processes. These advantages significantly support the application's adoption at Bapenda.

2. Compatibility

ASIAP is compatible with the needs and existing systems at Bapenda. This application is designed to meet the specific needs of regional tax management, which is already part of Bapenda's operational procedures. Therefore, this application was readily accepted because it aligns with existing tasks and functions.

3. Complexity

One of the challenges in adopting ASIAP is the application's complexity, which requires a certain level of technical expertise. However, the application is equipped with training and guidance to facilitate employee operation. Thus, while there is an element of complexity, the level of difficulty in use is minimized.

4. Trialability (Possibility of Trial)

Prior to its full implementation, ASIAP underwent a limited trial involving several employees to test its functionality. The results of this trial provided Bapenda with an opportunity to conduct initial evaluations and make improvements before the application's wider use.

5. Observability

The application's success is quite visible to all stakeholders. For example, the reduction in errors in recording and processing tax data, as well as the increased speed of SPPT distribution, are easily observable indicators of success. This visible success accelerated the adoption process among employees and strengthened confidence that ASIAP is an innovation worth maintaining.

### 3.4.3. The role of change agents and internal communication networks

According to the theory of innovation diffusion, there are five main characteristics that influence the adoption of an innovation: relative advantage, compatibility, complexity, trialability, and observability. These characteristics can also be used to assess the success of ASIAP innovation diffusion at the Pekanbaru City Regional Revenue Agency (Bapenda) [21].

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4. Trialability (Possibility of Trial)

Prior to its full implementation, ASIAP underwent a limited trial involving several employees to test its functionality. The results of this trial provided Bapenda with an opportunity to conduct an initial evaluation and make improvements before the application was rolled out more widely.

5. Observability

The application's success is quite visible to all stakeholders. For example, the reduction in errors in recording and processing tax data, as well as the increased speed of SPPT distribution, are easily observable indicators of success. This visible success accelerated the adoption process among employees and strengthened confidence that ASIAP is an innovation worth maintaining.

### 3.5. *Findings from In-Depth Interviews*

Interview results indicate that the level of user satisfaction of the ASIAP application is generally quite satisfactory, especially in terms of information accuracy and ease of use, although aspects of information freshness and application display still require improvement. Findings from in-depth interviews confirm that the process of adoption of the ASIAP application within the Bapenda environment is progressing gradually through informal communication and the role of internal change agents, where the e-WOM variable has proven to be very influential; most employees admitted to starting to use the application after receiving recommendations or hearing positive experiences from colleagues, which accelerates the spread of innovation within the organization. In addition, digital promotion through social media, *websites* , and digital *banners* is considered to have increased awareness and interest in the application, but the intensity and variety of promotions still need to be increased for wider reach, as expressed by several informants who felt that digital promotion has not optimally reached all taxpayers. The trust factor *also* emerged as a crucial aspect, where the majority of respondents felt confident in using the application because it was developed and managed directly by Bapenda and there is a guarantee of data protection, although a small number still have concerns regarding information security. In-depth interviews confirmed that transparency of management and support from leaders also strengthen user trust. Thus, the success and sustainability of ASIAP application adoption are not only influenced by the application's technical quality, but also depend heavily on the strength of e-WOM, the effectiveness of digital promotion, and the level of user trust in the application and its managing institutions. Optimizing these three variables is key to expanding the benefits and increasing user satisfaction of the ASIAP application in the future. These findings reinforce the results of quantitative research and confirm that the successful adoption of digital innovation in the public sector is strongly influenced by internal organizational factors, communication effectiveness, and active user involvement (Rogers, 2003; Ferreira et al., 2022).

## 4. Conclusion

Based on the results of research conducted on the implementation of the ASIAP application (PBB SPPT Inter-Application) at the Regional Revenue Agency (Bapenda) of Pekanbaru City, it can be concluded that ASIAP is a digital innovation that has a positive impact in increasing the efficiency and effectiveness of the distribution of SPPT PBB. The use of the *End-User Computing Satisfaction* (EUCS) model shows that the level of user satisfaction with this application is quite good, especially in the dimensions of accuracy and ease of use, which indicates that users feel the data in the application is accurate and the system is easy to operate. However, several aspects such as format and timeliness still have room for improvement.

Data transparency and collaboration between agencies can strengthen government digital innovation [23]. Ethical and privacy challenges need to be considered in the adoption of smart technology in the public sector [24].
Trust and user experience factors greatly influence e-government adoption intentions [25]. Effective communication strategies can reduce resistance and increase user participation [26]. Continuous evaluation is needed to ensure digital innovation remains relevant and adaptive to community needs [27].

From the perspective of the innovation diffusion process, the ASIAP application has gone through all stages of adoption—from knowledge to persuasion to confirmation. This innovation is considered to have a relative advantage , is compatible with existing work systems ( *compatibility* ), and can be tested gradually ( *trialability* ). However, challenges remain regarding the system's complexity and the limited observability of benefits by all users during its initial implementation. The role of change agents within Bapenda, as well as informal communication channels between employees, contributed significantly to accelerating the acceptance and adaptation of this application. Effective digital promotion can accelerate the adoption of technology-based government services [28]. The clear *relative advantage of digital applications will accelerate diffusion and adoption in bureaucratic environments [29].*

Adapting employee work routines is crucial in facing changes resulting from the digitalization of public services [30]. *Data-driven governance* is key to improving accountability and transparency in public services [31]. Digital transformation in the public sector requires a structured and sustainable change strategy [32]. In-depth interviews revealed that Bapenda employees generally welcomed ASIAP. They acknowledged the increased work efficiency and ease of access to information offered by this application. However, several challenges remain, such as limited features, the need for further training, and difficulties adapting for employees unfamiliar with digital technology.

The results of the study, which combined quantitative data from questionnaires and qualitative data from in-depth interviews, concluded that the ASIAP application was considered quite satisfactory by users, especially in terms of information accuracy and ease of use. The measurement results using the End-User Computing Satisfaction (EUCS) model showed the highest average scores in the accuracy (4.2) and ease of use (4.1) dimensions, while the timeliness and format dimensions obtained lower scores, namely 3.7 and 3.8. The following data visualization supports this interpretation:

**Table 1. Average User Satisfaction Score of ASIAP Application Based on EUCS Dimensions**

| Dimensions | Average Score (Scale 1-5) |
|---|---|
| Content | 4.0 |
| Accuracy | 4.2 |
| Format | 3.8 |
| Ease of Use | 4.1 |
| Timeliness | 3.7 |

Based on these findings, several recommendations can be made. First, the application's features and interface should be developed to be simpler and more intuitive to facilitate access for all levels of users. Second, regular training and technical assistance are crucial for improving internal digital literacy. Third, Bapenda (Regional Revenue Agency) can consider developing a responsive mobile version of ASIAP to support employee work flexibility and enhance user experience. Fourth, to increase public engagement and understanding, educational campaigns and public outreach are needed regarding the use and benefits of the ASIAP application for tax compliance.

Overall, ASIAP is a quiet innovation with significant potential to support public service reform at the regional level. With a strengthened development strategy and ongoing policy support, this application has the potential to become a model for digital innovation that can be replicated in other regions in Indonesia.

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