DOI: https://doi.org/10.70656/ijcse.v3i02.884

Design of the Website-Based Dashboard and Landing Page User Interface for the DISKOMINFOTIK Super App of Bengkulu Province Using the Design Thinking Method

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Abstract*— The development of digital services encourages the implementation of integrated systems in the government sector. However, the Bengkulu Provincial DISKOMINFOTIK agency still faces problems with systems that have not been integrated, an inconsistent interface design, and the complexity of using the admin dashboard. This research aims to design an easy-to-use admin dashboard, produce a consistent interface design, and provide an informative landing page. The method employed is Design Thinking which involves collecting data through observation, interviews, and documentation studies, as well as testing 5 respondents using a task scenario with indicators of task success rate and task completion time. The results show that the admin dashboard achieves a task success rate of 92% and a landing page of 90%, indicating shows a very good usability rate. This design contributes to creating an integrated, user-centric interface design to improve the efficiency of digital services.

Keywords- User Interface, Design Thinking, Dashboard, Landing Page, Usability Testing.

I. INTRODUCTION

The development of information technology has encouraged the transformation of public services towards an integrated digital system through the concept of e-government which aims to increase efficiency and transparency, as well as make it easier for people to access services[1]. Integrated information systems play an important role in unifying data from various units into a single platform, enabling fast, accurate, and real-time access to information, and supporting more effective decision-making processes[2]. The Bengkulu Provincial Government responded to this by developing the Super App, an integrated platform that combines various services into one system through the Bengkulu Provincial DISKOMINFOTIK. However, based on the results of observations during the Practical Work, it shows that the problem at this time is that the service system has not been integrated as a whole where each OPD has its own system, there is no consistent user interface design standard, and the administrator dashboard has not been integrated so that it requires technical capabilities for its operation. In this context, it is important to note that User Interface and User Experience have a crucial role in determining the success of an application because they are directly related to the visual appearance, ease of use, and user interaction experience in accessing the system[3].

Based on these problems, this study aims to develop a Super App system through the design of a User Interface Dashboard and a website-based Landing Page on Super Apps of DISKOMINFOTIK Bengkulu Province using the Design Thinking method. It focuses on developing an interface that is intuitive, integrated, and easy to use by the public and system administrators. To achieve this, it is necessary to understand that User Interface (UI) is an important component in an information system that functions as a medium of interaction between users and systems through visual elements such as buttons, icons, colors, typefaces, and layouts. A well-designed user interface has the advantage of improving ease of use, as users can understand the flow of the system without the need for special training. A clear and well-structured design can help users complete tasks faster and more efficiently, thus improving the efficiency of using the system [4]. Furthermore, the advantage of user interfaces lies in their ability to increase user satisfaction and retention of a system. The intuitive and easy-to-use interface can help users find information quickly, accurately, and efficiently. This aligns with previous research stating that the right implementation of UI in an app is crucial to address user issues, such as in speeding up search and providing a more satisfying user experience through an attractive interface [5].

Meanwhile, to design an interface that truly meets user needs, the Design Thinking method offers a human-centered approach. The Design Thinking method is an innovative, human-centered approach to solving complex problems through a deep understanding of user needs. This method consists of five systematic stages starting from Empathize to understand the user experience, Define to determine the core problem, Ideate to generate various alternative solutions, Prototype to create a design model, and end with Test to conduct direct tests to the user. Through these stages, developers can ensure that the resulting product not only functions technically but also provides relevant and practical solutions to real problems faced by users[6]. Based on previous research, the use of this method has been proven to increase the level of system usability, such as in the design of

a reporting dashboard which achieves a suitability level of 89.50% based on the results of user evaluation[7]. In addition, the advantage of Design Thinking lies in its ability to validate ideas quickly and effectively through a continuous iteration process. The use of this method allows designers to find a targeted solution with a lower risk of failure due to its strong focus on the end-user experience. In line with previous research, the application of Design Thinking has been proven to provide satisfaction for users in interacting with digital platforms because the design process is based on empathy for their needs[8]. Moreover, the application of Design Thinking in website design is able to provide convenience for users and produce interface designs that suit user needs based on usability testing results that receive positive responses[6].

Finally, this research specifically aims to design a user interface in the form of a dashboard and a website-based landing page that is integrated with the Super App of DISKOMINFOTIK Bengkulu Province. The formulation of the problem in this study is how to design an admin dashboard interface that can facilitate the systematic management of services and data, how to implement a consistent and intuitive design so that it is easy to use by users, and how to provide information to the public through an informative, attractive, and easily accessible landing page. With this design, it is hoped that the needs of stakeholders, especially the DISKOMINFOTIK as the manager and the community as users, can be met through improving the quality of user experience, system management efficiency, and more effective and integrated information delivery.

II. RESEARCH METHOD

The method used in this study is iterative and user-centered Design Thinking to produce an optimal interface design for the people of Bengkulu Province. In this process, each stage was evaluated through user feedback and testing results, which were then used to refine and improve the interface design iteratively before proceeding to the next stage. This approach was chosen because of its ability to explore user needs in depth and validate design solutions before the technical implementation stage is undertaken. The stages of this research are divided into five main phases, namely Empathize, Define, Ideate, Prototype and Test[4].



Fig. 1. Design Thinking Stages

A. Emphatize

In the empathize stage, data collection is carried out through direct observation of Bengkulu Province DISKOMINFOTIK stakeholders, interviews with related parties, and documentation studies on system needs. The results of this stage show that, from system management, difficulties are faced in monitoring and managing services because the systems used are still separate and not yet integrated. Meanwhile, from the perspective of the community as a user, it was found that there was a lack of consistency in the design of interfaces between services, which caused obstacles in using applications, and having to move between platforms to access different services. This condition is also supported by the results of a literature study, which shows that until now there is no unified interface design standard or integrated login page as a service information center.

Based on these results, it can be concluded that the main needs of users are an integrated dashboard, a simple and easy-to-use interface, and a clear and consistent presentation of information. These results are the basis for the next stage to formulate problems and determine design solutions that are oriented to user needs

B. Define

The definition process is carried out after knowing the focus of the problem experienced specifically based on the needs of the user from the observation results made in the emphathize process[9]. The researcher grouped problems based on the similarity of patterns using the affinity diagram method, this grouping aims to identify the main focus of the problems faced by the user. Figure 1 Based on the results of observations and document studies, the problems that arise can be categorized into three main aspects, namely the system, interface, and user.

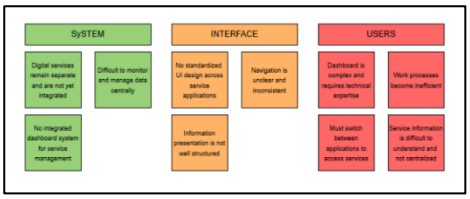


Fig. 2. Affinity Diagram of Problem Groups

Figure 2 shows that the main problems lie in the lack of integration of the system, lack of consistency in interface design, and low ease of use for users. From these results, a problem statement was formulated as the basis for the design, namely the need to design an integrated, consistent, and easy-to-use user interface for admin dashboards and landing pages to improve management efficiency and user experience.

C. Ideate

In the ideate stage, the process is focused on developing design solutions based on the problems that have been formulated at the definition stage[9]. The result at this stage is the preparation of a user flow diagram that is used to describe the flow of user interaction with the system in a systematic manner. The preparation of user flows aims to ensure that the flow of the system is simple, structured, and easy to understand, so that it can improve efficiency and user experience.

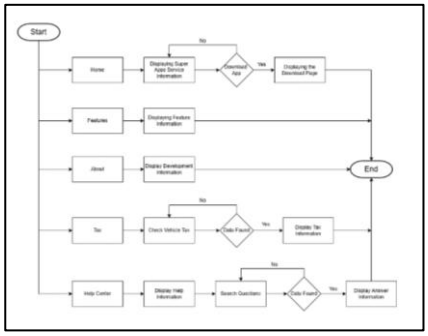


Fig. 3. User Flow Landing Page

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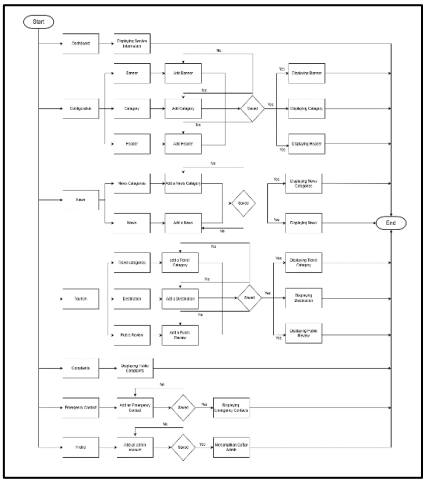


Fig. 4. User Flow Dashboard Admin

Figure 3 shows the design of the system that has become more targeted because every user interaction has been clearly mapped. The results of this stage then become the basis for making wireframes and prototypes in the next stage, so that the resulting design is in accordance with the needs and flow of use that has been designed.

D. Prototype

The prototype stage is one of the crucial elements in the design thinking process carried out by researchers. At this stage, the researcher makes a model or prototype of the concept generated at the ideate stage. Using prototypes, researchers can clarify and test ideas before moving on to further implementation stages. Here are some crucial steps that need to be carried out in the prototype stage:

Wirefrime

In figure 4 and figure 5, the researcher has made a simple appearance sketch to create a design for the UI Dashboard and Landing Page Super Apps. The researcher only created it in this sketch without carefully considering the visual aspect. Before designers start incorporating more complex visual elements, wireframes are used to ensure that the structure of the app's interface meets the needs of users. Essential components of the system display, such as buttons, menus, and other elements, are also described in the wireframe.



Fig. 5. Wireframe Landing Page



Fig. 6. Wireframe Dashboard Admin

Mockup

At this stage, the researcher builds a more in-depth model or prototype interface of the Dashboard and Landing Page Super App. The purpose of using this mockup is to test and visualize previously created concepts. The researcher pays close attention to every aspect of the display during the mockup creation process, including colors, fonts, and element sizes. The researcher also considered the usability of the user when choosing the layout shown in Figure 6 and Figure 7, so that the available features could be easily found and utilized. Using a good layout can reduce the chances of user errors or ignorance while using the app and increase user engagement.

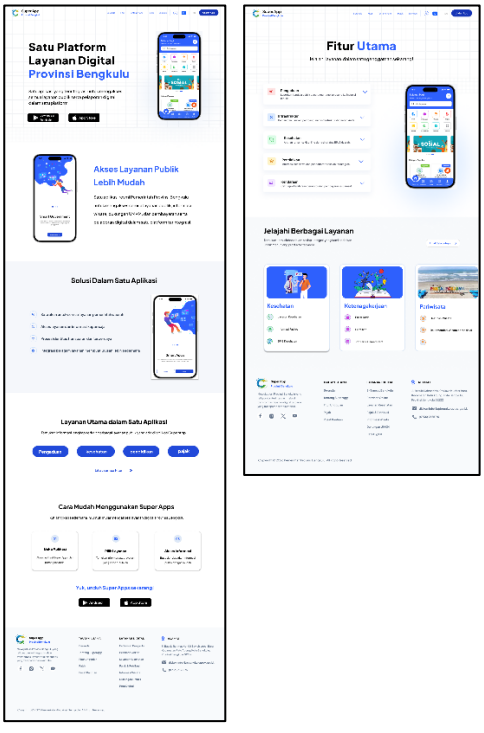


Fig. 7. Mockup Landing Page and Feature

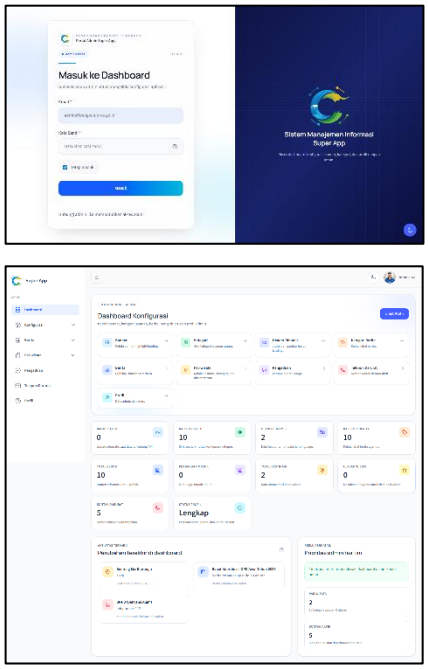


Fig. 8. Mockup Dashboard

After going through the prototype stage, the researcher succeeded in producing a design of the user interface of the Dashboard and Landing Page Super App that has been created using Userflow, Wireframe, and Mockup. In addition, in this stage, the researcher also evaluates the design that has been made by involving users to get valuable input and suggestions to improve the quality of the application's interface. This evaluation aims to ensure that the interface is in line with the user's needs and expectations, as well as to improve the user experience in its use.

E. Test

The last stage in the design process using the Design Thinking method is testing[9]. The goal is to validate and test whether or not the solution that has been generated can solve the problem experienced by the user[5]. At this stage, testing is carried out on an interactive prototype using a task scenario designed to represent the main activity of the user. The test was carried out to stakeholders as admin dashboard users and the public as landing page users, by providing usage simulations through interactive prototypes that have been designed using design tools, namely Figma. The following Table 1 and table 2 are used for task scenarios during the testing process, observations of user interactions and recording of time to complete tasks and obstacles faced.

Table 1. Test Scenario on Dashboard

No	Testing
1.	The user logs in to the system and accesses the main dashboard page.
2.	Users understand the statistical information on the dashboard page.
3.	Users access the configuration module to manage dynamic banners, categories, and headers on Super App.
4.	Users access the news module to manage news and news categories.
5.	Users access the tourism module to manage tour categories, destinations and public reviews.
6.	Users access the complaint module to manage community complaints.
7.	The user accesses the emergency contact module to manage the emergency contact number.
8.	The user uses the menu sidebar to move between pages.
9.	Users access the profile menu to manage admin profiles.
10.	The user log out of the system.

Table 2. Landing Page Testing Scenarios

No	Testing
1.	The user accesses the main page and understanda the information displayed.
2.	Users read and understand the section “One Digital Service Platform for Bengkulu Province”.
3.	The user finds and accesses the main navigation menu (Home, Features, About Us, Taxes, Help).
4.	The user accesses the features page and understanding the services available.
5.	Users explore the explore various services section and understand the categories of services displayed.
6.	Users access the taxes page and understand how to check vehicle taxes.
7.	Users access the help page and search fir information using the search or FAQ feature.
8.	Users understand the “easy guide to using ways the Super App” section.
9.	Users find a call-to-action button such as download ndroid/App Store
10.	The user finds contact information, address, or footer as an additional source of information.

The following are Table 3 and Table 4 of the test results obtained from the task scenario after being carried out to the user and the assessment after the test. To measure the test results, two main indicators are used, namely task success rate and time of working. Task success rate aims to find out how many tasks have been successfully completed by respondents while time of working is used to process test data based on the average amount of time spent by respondents in completing tasks, with the formula[10],[11],[12]:

$$\text{Task Success Rate} = \left(\frac{Number\ of\ successful\ tasks}{Number\ of\ tasks}\right) x\ 100\%$$

$$\text{Time Based Efficiency} = \frac{\sum_{J=1}^{R}\sum_{i=1}^{N}\frac{nij}{tij}}{NR}$$

Table 3. Task Scenario Dashboard Results

	Task Completed	Total Task	Task Success Rate	Time Based Efficiency (second)
User1	10	10	100%	90
User2	9	10	90%	100
User3	9	10	90%	105
User4	8	10	80%	115
User5	9	10	90%	95
Final Score			**90%**	**0,009 sec**

Table 4. Task Scenario Landing Page Results

	Task Completed	Total Task	Task Success Rate	Time Based Efficiency (second)
User1	10	10	100%	120
User2	9	10	90%	135
User3	8	10	80%	150
User4	9	10	90%	140
User5	10	10	100%	115
Final Score			**92%**	**0,002 sec**

Based on the test results, it shows that the landing page has a task success rate of 90% with an average time of 101 seconds, while the admin dashboard has an average task success rate of 92% with an average completion time of 132 seconds. A score above 80% indicates that both interfaces have an excellent level of usability. Landing pages have faster turnaround times due to a simpler navigation structure, while admin dashboards take longer due to the higher complexity of features. This shows that the design has been effective in supporting user needs, both in terms of system management by admins and access to information by the community.

III. RESULT AND DISCUSSION

This research resulted in a design of a User Interface admin dashboard and a website-based landing page on Super Apps of DISKOMINFOTIK Bengkulu Province using the Design Thinking method. In this section, the results of the design and evaluation based on the research objectives are explained, including the design of the admin dashboard, the design of the landing page, and the analysis of the usability of the system.

A. Admin Dashboard Design

The admin dashboard is designed as a center for managing content and services in an organized and modular system, Usability testing on the admin dashboard is carried out using the task scenario method on 5 respondents who are stakeholders as system users. The test scenario consists of 10 main tasks, including logging into the system, understanding the dashboard statistical information, accessing and managing configuration modules, news, tourism, complaints, emergency contacts, using sidebar navigation, accessing profiles, and logging out of the system.

Measurement is carried out using two indicators, namely task success rate and time-based efficiency. In the task success rate measurement, each task is given a value of 1 (successful) if the user is able to complete the scenario without assistance and according to the goal, and 0 (fail) if the user cannot complete the task or makes a mistake[10],[12]. The calculation is carried out with the formula:

$$\textbf{Task Succes Rate} = \left(\frac{100 + 90 + 80 + 90 + 100}{5}\right) x\ 100\% = 92\%$$

The test results showed a task success rate of 92%, which indicates a high level of effectiveness. In addition, efficiency is measured using time-based efficiency, which is the time it takes for users to complete all tasks[11]. Calculation on the standard usability testing with the formula:

$$\textbf{Time Based Efficiency} = \frac{0{,}139}{15} = 0{,}009 \text{ goals/sec}$$

The results showed a value of 0.009 tasks/second with an average completion time of 132 seconds. Based on the results of the calculation of time success rate and time-based efficiency, it shows that the admin dashboard has a very good level of usability in terms of effectiveness and efficiency, although the complexity of the feature affects the duration of task completion.

B. Landing Page Design

Landing pages are designed as a medium to convey information to the public with a simple and informative structure. Usability testing on landing pages was carried out using the task scenario method on 5 respondents who are the general public as system users. The test scenario consists of 10 tasks, including accessing the main page, understanding the information in the hero section, accessing the navigation menu, exploring the service features, accessing the vehicle tax page, using the help and FAQ features, understanding how to use the application, finding the call-to-action button, and accessing contact information in the footer.

Measurement is carried out using two indicators, namely task success rate and time-based efficiency. In the task success rate measurement, each task is given a value of 1 (successful) if the user is able to complete the scenario without assistance and according to the goal, and 0 (fail) if the user cannot complete the task or makes a mistake[10],[12]. The calculation is carried out with the formula:

$$\textbf{Task Succes Rate} = \left(\frac{100 + 90 + 90 + 80 + 90}{5}\right) x\ 100\% = 90\%$$

The test results showed that the landing page obtained a task success rate of 90%, which indicates that most respondents were able to complete the assigned task. In addition, efficiency is measured using time-based efficiency with calculations on standard usability testing with the formula [11]:

$$\textbf{Time Based Efficiency} = \frac{0{,}38}{15} = 0{,}002 \text{ goals/sec}$$

Based on the results of the time-based efficiency test, a value of 0.002 seconds was obtained with an average completion time of 101 seconds, which shows a good level of usage efficiency. The following is Figure 7, a visualization chart of usability comparison between the admin dashboard

and landing page based on the results of the task success rate and time based efficiency.

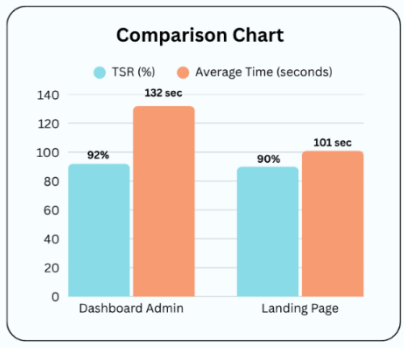


Fig. 10. Usability Comparison Visualization Chart

C. Analysis of Usability Results

The test results show that the designed interface has been able to meet the needs of users from both the admin and community sides. The admin dashboard supports more structured data management by obtaining a task success rate of 92%. Features such as sidebar navigation, integrated module grouping, and dashboard statistical displays contributed significantly to usability improvement by simplifying navigation, reducing user confusion, and improving efficiency in accessing information. Meanwhile, the landing page is able to present information clearly and easily understandable, with a task success rate of 90%.

A success rate above 80% is categorized as excellent usability, indicating that both interfaces are effectively used without significant assistance[13]. This finding is in line with previous research, which stated that the usability value of 80.75% is included in the good category[12]. Thus, the values of 90% and 92% in this study can be categorized as very good. In addition, the application of the Design Thinking method has been proven to be able to produce interface designs that suit user needs and improve the ease of use of the system [5],[8],[4].

D. Research Evaluation and Challenges

Based on the results of the tests that have been carried out, it shows that the admin dashboard has a longer completion time than the landing page, which is an average of 132 seconds with a task success rate of 92%. This is due to the complexity of multi-module features, such as configuration and tourism, which require more interaction and understanding of the flow of the system. In contrast, landing pages have a faster time of 101 seconds with a 90% task success rate due to a simple navigation structure and information presentation-oriented.

Using the design thinking method, the complexity findings come from the empathize stage which identifies the needs of the integrated system, then formulated at the define stage as the needs of a structured dashboard. The solution at the ideate and prototype stages resulted in clear module grouping and navigation, which was proven to be able to keep the task success rate high in the testing stage, although efficiency was still affected by the complexity of the features.

The limitations of the study lie in the fact that the full implementation of the system has not been carried out and the limited number of respondents. Further development can be focused on simplifying flows on complex modules and testing with a wider user scale.

IV. CONCLUSION

This research is motivated by the problem of unintegrated service systems, lack of consistency in interface design, and complexity of dashboard use. In overcoming these problems, this research provides a solution through designing a User Interface admin dashboard and a website-based landing page using the Design Thinking method that focuses on user needs.

The results of the study show that the resulting design is able to improve the ease of use and efficiency of system management. The admin dashboard has a task success rate of 92% and a landing page of 90%, which indicates a very good usability rate. Thus, the research goal of producing an integrated and easy-to-use interface has been achieved.

This research still has limitations in the implementation stage of the system that has not been carried out and the limited number of respondents. Therefore, further research can be developed with full system implementation, real-time integration with the backend, and more comprehensive usability evaluation by involving a larger number of respondents.

ACKNOWLEDGMENTS

The author would like to thank the Bengkulu Provincial DISKOMINFOTIK for providing opportunities, support, and access to data during the implementation of the Practical Work and the process of designing the user interface of the admin dashboard and landing page on Super Apps. The author also expressed his gratitude to the supervisors who provided direction, guidance, and input during this research process. Thank you to all parties who have assisted in the process of data collection, system design, and preparation of this research.

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