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Article

# Design and Feasibility Evaluation of the TAPTAP Digital Platform for Measuring Port Service User Satisfaction at KSOP Bontang

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### ABSTRACT

This study designs and evaluates the feasibility of the TAPTAP digital platform, a Figma-based prototype for measuring port service user satisfaction at the Bontang Harbormaster and Port Authority Office (KSOP Bontang). The study used a Research and Development (R&D) approach adapted into six stages: problem identification, information collection, product design, design validation, design revision, and product trial. Data were gathered through field observation, document review, stakeholder input, and expert feasibility assessment. Two expert testers, consisting of a marine transportation lecturer and an information technology expert, assessed the prototype using a feasibility instrument covering button functionality, initial menu display, completeness and readability of satisfaction questions, presentation of satisfaction results, and overall feature functionality. TAPTAP provides public-side features for satisfaction surveys, complaints, and aspirations, as well as officer-side features for report monitoring and satisfaction-data visualization. The feasibility test produced scores of 80% from Tester 1 and 85.33% from Tester 2, indicating that the prototype is feasible for further pilot testing. The results show that TAPTAP can support more structured service feedback management at KSOP Bontang, although broader public-user testing, database implementation, data security validation, and integration with KSOP systems are still required before operational deployment

## 1. Introduction

Port public services require fast, transparent, and accountable feedback systems because service users depend on licensing, sailing approval, ship certification, and port-business services to support maritime activities. In the Industry 5.0 context, digital technology is not only used for automation but also for human-centered public-service governance. For KSOP Bontang, digitalization can support routine satisfaction measurement, real-time complaint recording, and data-based service evaluation. In this study, a digital platform is understood as an online infrastructure that connects service users and officers through structured survey, complaint, and reporting features.

User satisfaction is closely related to public-service performance because it reflects how far the service received by users meets their expectations. In port administration, satisfaction is not limited to the friendliness of officers, but also includes service timeliness, clarity of procedures, speed of document processing, reasonable costs, and adequacy of facilities. If satisfaction is not measured regularly, KSOP may find it difficult to identify service gaps, prioritize improvements, and demonstrate accountability to port service users.

The need for a more structured feedback system is also supported by the local service context in Bontang. Ombudsman RI Representative of East Kalimantan conducted direct aspiration-gathering with fishers in Bontang and identified potential public-service issues in the marine and fisheries sector (Ombudsman Republik Indonesia, 2024). Media coverage of an ORI Kaltim forum on November 19, 2024 also reported concerns about the complexity of administrative documents, including Small Pass, Standard Operating Procedures/Operation Feasibility documents, and Sailing Approval Letters (Bontang Post, 2024). These issues show that port-service feedback, complaints, and aspirations need to be recorded in a more accessible and traceable system.

Based on field observations at the Bontang Harbormaster and Port Authority Office (KSOP), the measurement of service user satisfaction has not been conducted routinely every year. This condition limits the availability of evidence for evaluating service performance, especially in services related to port business licensing, sailing approval, ship movement, and ship

certification. Without routine measurement, management cannot clearly identify which service indicators require improvement or how user complaints should be followed up.

This study therefore proposes TAPTAP as a digital prototype that combines satisfaction surveys, complaints, aspirations, and reporting in one platform. The research gap lies in the fact that previous studies mainly examined the relationship between maritime service quality and customer satisfaction, while this study focuses on designing and evaluating the feasibility of a digital feedback prototype for the KSOP Bontang context.

The prototype was designed using Figma because the purpose of this study is to develop and evaluate the user interface, user flow, and feasibility of the platform before full system development. Therefore, TAPTAP should be understood as a Figma-based prototype, not as a fully deployed operational system with database and server integration.

Sitompul (2023) found that maritime service quality is related to customer satisfaction at the Tanjung Perak Main Harbormaster Office. However, that study did not develop a digital platform for collecting satisfaction data, complaints, and aspirations. This study differs by producing a TAPTAP prototype and testing its feasibility with expert testers. The objective of this research is to design and evaluate the feasibility of the TAPTAP digital platform as an initial model for measuring port service user satisfaction at KSOP Bontang

## 2. Literature Review

### 2.1 Digital Design

Digital design refers to the process of creating service interfaces, user flows, and visual components with the support of digital tools. In public-service systems, digital design is not only concerned with visual appearance, but also with usability, clarity of information, accessibility, and the ability of the interface to guide users toward completing their tasks. In this study, digital design is applied to the TAPTAP prototype by translating port-service feedback needs into menus for surveys, complaints, aspirations, and admin reporting. Figma is used as a prototyping tool to visualize the interface and test the logical flow before technical development is carried out (Bangsawan et al., 2023; Widya & Darmawan, 2016).

## 2.2 User Satisfaction

Satisfaction is the feeling or emotional state that arises when a person feels content or derives satisfaction from an experience, achievement, or interaction. It includes positive feelings, happiness, or satisfaction that emerges when an individual feels that their needs, expectations, or desires have been met or exceeded. Satisfaction can be obtained from various aspects of life, including work, social relationships, hobbies, or personal achievements, and plays an important role in well-being and quality of life (Kotler et al., 2021).

User satisfaction in a digital service system can be explained through the End-User Computing Satisfaction (EUCS) perspective, which includes content, accuracy, format, ease of use, and timeliness (Hidayah et al., 2020). In TAPTAP, EUCS is used as background theory to ensure that the digital interface is clear, accurate, easy to use, and timely in presenting feedback information. For the port-service indicators, this study also refers to the SERVQUAL logic of reliability, responsiveness, assurance, empathy, and tangibles. The five TAPTAP survey indicators are mapped as follows: punctuality reflects reliability, service speed reflects responsiveness, staff friendliness reflects empathy and assurance, reasonable fees reflect assurance and service fairness, and facilities reflect tangibles.

## 2.3 Service Context at the Bontang Harbormaster and Port Authority Office (KSOP)

The Bontang Harbormaster and Port Authority Office (KSOP) provides services related to port management, supervision, ship safety, port business activities, and ship certification in Bontang, East Kalimantan. In the TAPTAP prototype, these services become the basis for survey indicators and complaint categories so that feedback from users can be linked to actual KSOP service processes. The main service areas are divided into three sections:

- 1) Sea Transportation Traffic and Port Business Services  
The Sea Transportation Traffic and Port Business Services Section provides services related to Business Activity Permits (PMKU), opening agency company branches, managing Terminals for Self-Interest (Tersus) and Special Terminals (TUKS), and processing Loading and Unloading Activity Plans (RKBM). In TAPTAP, this service group can be represented in the complaint category and assessed through indicators such as punctuality, service speed, and clarity of information.
- 2) Sailing Safety, Guard, and Patrol Services  
The Sailing Safety, Guard, and Patrol Section

provides services related to ship security and safety at sea and in port, including seafarers books, Sailing Approval Letters (SPB), ship movement permits, bunker activity supervision, ship tender supervision, ISPS Code supervision at Tersus and TUKS, dangerous-goods supervision, and sea patrol activities. These services are closely related to the TAPTAP indicators of service speed, officer responsiveness, and reliability because users need timely and accurate approval before conducting maritime activities

- 3) Legal Status and Ship Certification Services  
The Legal Status and Ship Certification Section provides services related to ship certificates, including Anti-Fouling Certificates, Seaworthiness Certificates, and Nautical-Technical-Radio (NTR) Certificates. This section also handles ship measurement before official registration. In the TAPTAP design, this service category can be used to classify complaints and satisfaction responses related to legality, certification completeness, processing time, and information clarity.

## 3 Research Methodology

This research used a Research and Development (R&D) approach because the study aimed to produce and evaluate a digital prototype, not to test a causal relationship statistically. The R&D process was adapted from the ten development stages commonly used in product development. However, this study was limited to six stages: (1) identification of potential and problems, (2) information collection, (3) product design, (4) design validation, (5) design revision, and (6) product trial. The remaining stages, namely broader product revision, wider trial, final revision, and mass production, were not conducted because the study was still at the early prototype and feasibility-evaluation stage. Therefore, the results should be interpreted as expert feasibility evidence, not as proof of operational effectiveness or increased public satisfaction.

- 1) Identification of potential and problems  
Potential problems were identified through field observation at KSOP Bontang, informal input from service users, review of the 2023 customer satisfaction report, and review of previous studies on maritime service quality. The focus of this stage was to understand why routine satisfaction measurement had not been conducted consistently and what

types of feedback features were needed by port service users and KSOP officers.

## 2) Gathering Information

Information was collected through observation, document review, and stakeholder input. Observation was used to understand the service flow and user feedback needs. Document review was used to identify existing satisfaction indicators, including punctuality, officer friendliness, service speed, costs, and facilities. Stakeholder input from service users and KSOP officers was used to determine the need for mobile access, transparent results, complaint follow-up, and dashboard reporting.

## 3) Product Design

The product developed in this study is the TAPTAP digital prototype. The prototype contains public-side features for filling out satisfaction surveys, submitting complaints, submitting aspirations, and checking complaint status. It also contains officer-side features for viewing complaint data, monitoring follow-up status, and reading satisfaction statistics. Figma was used to design the interface, user flow, reusable components, and clickable prototype before future database and application development.

## 4) Design Validation

Design validation was conducted to evaluate whether the TAPTAP prototype was relevant, understandable, and feasible for early-stage use. The validation involved two expert testers: Sri Mulyanto Herlambang, ST, MT as a marine transportation lecturer and supervising lecturer, and Muhammad Ridho Bintang Janaputra, S.Si as an information technology expert. The validation criteria covered functionality, interface clarity, survey completeness, result presentation, feature usability, data privacy, access control, and operational feasibility. Feedback was collected through a focused discussion and a feasibility assessment instrument, then translated into design revisions.

### a. Wireframing and Initial Sketches

Initial sketches and wireframes were prepared based on port-service requirements and user needs identified during the problem and information-

collection stages. The main user flow starts from login or role selection, continues to survey or complaint/aspiration submission, and ends with confirmation and admin monitoring. Key elements include the public dashboard, survey form, complaint and aspiration forms, admin login, data table, and satisfaction dashboard.



**Figure 1.** Questionnaire Filling Process Flow

## b. Prototype Design

1. Visual display design was conducted in Figma by arranging colors, typography, icons, input fields, menu cards, and dashboard components. The interface was designed to be simple and consistent so that port service users can understand the survey and complaint flow without lengthy instructions.

2. Reusable components were created for buttons, input fields, menu cards, and dashboard elements to maintain consistency across public and admin pages.

3. Interactive links were added in the Figma prototype to simulate navigation between screens, including role selection, login, survey completion, complaint submission, aspiration submission, and admin monitoring.

## 5) Design Revision

After the product design was validated, the weaknesses and improvement needs were identified from expert feedback. The revision stage focused on improving the clarity of dashboard information, survey instructions, figure captions, role-based access, and explanation of how satisfaction results are displayed. The revised prototype was then finalized for feasibility testing.

### a. Prototype Finalization

1. The final Figma prototype was

- prepared after the validation feedback had been addressed.
2. Design documentation was prepared by describing user flows, menu functions, survey indicators, and feature specifications.
  3. The prototype was not deployed as a complete application in this study. Database development, security testing, server integration, and operational implementation are recommended for future research.
  4. After the prototype is piloted with actual port service users in the future, feedback should be collected again to support further improvement.
- 6) Product Trial
- Research instruments are tools used to collect and measure research data. In this study, the instrument was a product feasibility assessment sheet adapted to the TAPTAP prototype. The instrument helped the expert testers evaluate whether the prototype interface, features, and reporting design were appropriate for early-stage use. Sekaran and Bougie (2016) explain that research instruments help researchers collect data in a more systematic way, while Sugiyono (2019) emphasizes the role of instruments in measuring research variables.
- The product trial was conducted through expert feasibility testing. Because only two expert testers were involved, the test results represent initial prototype feasibility and should not be interpreted as actual user satisfaction or operational effectiveness. Each assessment item was compared with an ideal score, and the percentage index was calculated using the formula:  $\text{percentage index} = \text{actual score} / \text{ideal score} \times 100\%$ . The instrument assessed five main scoring items and also considered qualitative comments on usability, accessibility, data privacy, service relevance, reporting accuracy, and operational feasibility. The feasibility test grid is presented in Table 1.

**Table 1.** Feasibility Test Grid

Aspect	Indicator
Service User Satisfaction Assessment Platform	Button performance and role-based access operate according to their intended functions.
	The initial menu, role selection, UI/UX layout, and navigation flow are clear and accessible.
	Satisfaction questions are readable, complete, and aligned with port-service indicators.
	Satisfaction results, complaint data, dashboard reporting, and trend information can be displayed clearly.
	Public and officer features work according to the prototype flow while considering data privacy, service relevance, and operational feasibility.

## 4 Results and Discussion

### 4.1 Research results

#### a. Identification of Potential Problems and Information Collection

**Table 2.** Results of Information Collection & Potential Problems

No	Information Source	Information Obtained	Implications for Platform Design
1.	KSOP Bontang service staff (interview/field input)	The customer satisfaction survey process has not been conducted routinely every year.	A digital survey system is needed to store and process feedback data automatically.
2.	Port service users, including ship agents, logistics operators, and seafarers (user input)	Users need a practical survey that can be accessed by mobile phone and whose results can be viewed transparently.	The interface should be simple, responsive, and accessible through mobile devices.
3.	2023 customer satisfaction report document (document review)	Satisfaction indicators include five main aspects: punctuality, staff friendliness, service	The digital survey form needs to present these five indicators as the main assessment items.

No	Information Source	Information Obtained	Implications for Platform Design
		speed, costs, and facilities.	
4.	KSOP internal infrastructure information (document and staff input)	KSOP has internal networks and servers that may support future data storage.	The prototype needs to be prepared for future integration with local servers or an internal database.
5.	Head of KSOP Bontang (management input)	Management needs quick reports and visual graphs to monitor user satisfaction trends.	<i>The dashboard should include data visualization and automated reporting features.</i>
6.	Literature study and previous research (Sitompul, 2023)	Previous research found a relationship between service quality and customer satisfaction, but did not design a digital feedback prototype.	The platform should measure service quality through an interactive digital and visual approach.

## b. Product Design

The platform has two main user sides: public users and KSOP officers.

### a. User Side (Public)

The public side is used by port service users to provide satisfaction assessments, submit complaints, submit aspirations, and complete service surveys. These features were designed to make feedback submission easier and to connect user input with KSOP service-evaluation needs.

## 1) Dashboard Home Menu



**Figure 2.** Initial Menu Design  
Figma Design by the author (2025)

Figure 2 shows the initial dashboard menu of the TAPTAP prototype. The screen displays the KSOP Bontang identity, a login button, and role options for public users and officers. The layout supports port service users because it places the main navigation choices on the first page, reducing confusion for users who only need to submit feedback or view service-related information. The use of a simple color scheme, icons, and centralized menu placement was selected to create a formal public-service appearance and to keep the first interaction focused.

The claim of ease of use is supported by the validation feedback, which emphasized the need for clear role selection, readable instructions, and simple navigation. Therefore, the dashboard was revised to display clearer information about the platform function and satisfaction indicators. In this study, responsiveness is treated as a design criterion in the Figma prototype and still requires broader usability testing with actual port service users.

## 2) Login

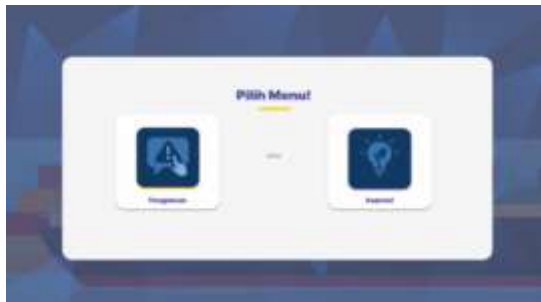


**Figure 3.** Login Menu Design  
Figma Design by the author (2025)

Figure 3 shows the public login page in the TAPTAP prototype. The form includes name, user ID, and optional email because some feedback may require follow-up by KSOP officers. However, the prototype applies a data-minimization principle: only information needed for verification or follow-up should be collected, while optional contact information should not prevent users from submitting general service feedback.

From a UX and governance perspective, the login flow separates public users and KSOP officers. Public users are directed to survey, complaint, and aspiration features, while officers are directed to data-management features. The prototype also indicates the need for authentication, role-based access control, secure storage, and confidentiality procedures before operational implementation. Because security testing was not conducted in this study, these elements are recommended for the next development stage.

### 3) Home Menu



**Figure 4.** Initial Menu Design  
Figma Design by the author (2025)

**Figure 4.** shows the public home menu after users log in to TAPTAP. The menu provides four main features: completing a satisfaction survey, submitting a complaint, submitting an aspiration, and viewing complaint status. In the current study, these functions are represented as a Figma prototype and simulated data flow, not as a fully implemented database system. Future development should connect these inputs to a database so that complaints, aspirations, and survey responses can be stored, retrieved, and monitored systematically.

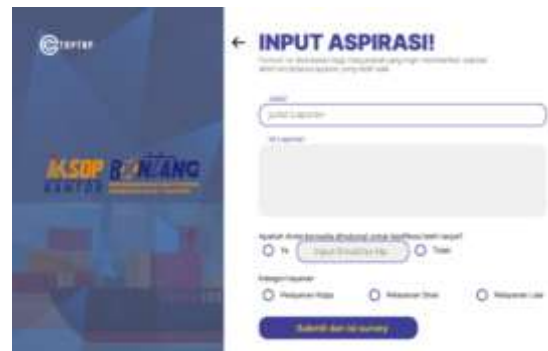
The card-grid concept helps users recognize each feature quickly because each menu is represented by a distinct icon and label. This design supports port service users who may access the platform through mobile

devices and need direct access to the most relevant feedback functions. The design therefore emphasizes clear navigation, short interaction paths, and service-oriented menu grouping.

### 4) Form Complaints / Aspirations



**Figure 5.** Complaint Form Menu Design  
Figma Design by the author (2025)



**Figure 6.** Aspiration Form Menu Design  
Figma Design by the author (2025)

Figures 4.4 and 4.5 show the complaint and aspiration form designs in the TAPTAP prototype. The complaint form is intended for users who experience service problems, while the aspiration form is intended for suggestions or improvement ideas. Separating the two forms makes the feedback classification clearer for KSOP officers and supports more accountable follow-up because complaints and aspirations may require different handling procedures.

The form fields were selected based on the need to identify the issue, understand the context, and allow follow-up. The title and description fields are required to clarify the content of the complaint or aspiration. The date, location, and service category help officers trace the service process being reported. Identity and contact options should be treated as optional or limited to follow-up needs, in line with the data-minimization principle. The submit button directs users to complete the

satisfaction survey so that qualitative feedback and quantitative satisfaction data can be collected together.

5) Survey

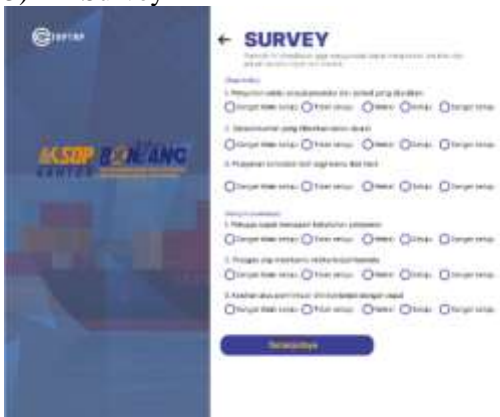


Figure 7. Survey Menu Design, Page 1  
Figma Design by the author (2025)



Figure 8. Survey Menu Design, Page 2  
Figma Design by the author (2025)



Figure 9. Survey Menu Design, Page 3  
Figma Design by the author (2025)

Figures 7, 8, and 9 show the survey menu in the TAPTAP prototype. The survey uses five service indicators: punctuality, staff

friendliness, service speed, reasonable fees, and facilities. These indicators are linked to service-quality theory: punctuality represents reliability, service speed represents responsiveness, staff friendliness represents empathy and assurance, reasonable fees represent assurance and fairness, and facilities represent tangibles. Users provide ratings using a satisfaction scale, and the score can be converted into a percentage index by comparing the actual score with the ideal score. This explanation is important because the survey results shown in the admin dashboard should be interpreted as prototype-based satisfaction data that still requires pilot testing with actual port service users.

6) Finished



Figure 10 Finish Menu Design  
Figma Design by the author (2025)

Figure 10 shows the finish menu that appears after users submit a complaint, aspiration, or satisfaction survey. The screen displays a completion message as confirmation that the submission flow has ended successfully. This page is important in the user journey because it assures users that their feedback has been received by the system.

Functionally, the finish page provides closure and appreciation to users who participate in the feedback process. In the prototype stage, this page represents the expected confirmation flow. In the operational stage, it should be connected to a database-generated receipt number or status code so that users can track complaint follow-up more transparently.

b. Officer Side (KSOP Admin)

The officer side is used by KSOP officers to monitor, manage, and analyze survey results, complaints, and aspirations submitted by port service users. This side is important for service

governance because it supports follow-up recording, accountability, and data-based service evaluation.

### 1) Select Role



**Figure 11.** Role Selection Menu Design  
Figma Design by the author (2025)

Figure 11 shows the role selection page before users enter the data-management system. This page displays two roles, namely public users and officers. The officer option directs KSOP staff to the admin area for managing complaint data and survey results. The role separation is important because public users and officers have different permissions. Public users can submit feedback, while officers can view reports, monitor status, and manage follow-up actions.

### 2) Login



**Figure 12.** Admin Login Menu Design  
Figma Design by the author (2025)

Figure 12 shows the admin login page used by KSOP Bontang officers to access complaint data and satisfaction survey results. The page contains username and password fields and a login button. In the TAPTAP design, admin login represents role-based access control, meaning that only authorized officers should be able to view, verify, and follow up reports. Public users should not have access to admin data tables or satisfaction dashboards. Before implementation, this feature should be

supported by secure authentication, password management, access logs, and clear user-permission rules.

### 3) Filling Results



**Figure 13.** Filling Results Menu Design  
Figma Design by the author (2025)

Figure 13 shows the filling results page on the officer side of the TAPTAP prototype. This page displays complaint and aspiration data submitted by port service users in table form. The main columns include options, complaint or aspiration title, date, sender name, type, and action. In the current prototype, the displayed data are simulated to show the expected workflow. In future development, these data should be stored in a database so that every report can be tracked from submission to follow-up completion.

Each row includes a Follow Up button that allows officers to open report details and record the next action. This feature supports accountability because each complaint or aspiration can be linked to a response status, responsible officer, and completion note. Such a mechanism can help KSOP monitor whether user feedback has been handled properly.

### 4) Statistical Results



**Figure 14.** Statistics Results Menu Design  
Figma Design by the author (2025)

Figure 14 shows the statistical results page on the officer side of the TAPTAP prototype. This page visualizes satisfaction survey data through statistical figures, bar charts, pie charts, and trend displays. The satisfaction index is designed to be calculated using the percentage index formula, namely actual score divided by ideal score multiplied by 100%. Monthly trends are generated by grouping survey responses by submission month and calculating the average satisfaction index for each period.

The dashboard supports data-based decision-making because officers can identify which service aspects receive lower scores and require improvement. However, the figures shown in the prototype should be treated as placeholders or simulated display examples. Actual trend analysis can only be conducted after the platform is connected to a database and used by real port service users.

c. Design Validation

During the product design validation phase, researchers conducted a review and focused discussion with two expert testers who had relevant expertise in marine transportation services and information technology. Design validation was conducted to ensure that the TAPTAP prototype complied with port-service needs, KSOP work procedures, public-service accountability principles, and basic UI/UX design criteria.

The focused discussion produced several key themes: the initial dashboard needed clearer information, the survey instructions needed to be more explicit, complaint and aspiration forms needed clearer classification, figure captions needed consistent numbering, and officer access needed stronger role-based explanation. These themes were used as the basis for design revision.

The validation results were not treated as proof of operational effectiveness. Instead, they were used to determine whether the prototype was sufficiently feasible for further testing and development. The main validation feedback and design revisions are summarized in Table 3.

**Table 3.** Summary of Design Validation Feedback and Revisions

<b>Validation Feedback and Revision Summary</b>
Initial dashboard: added the website purpose and satisfaction-index explanation.
Survey form: clarified instructions, satisfaction scale, and SERVQUAL indicator mapping.
Complaint and aspiration forms: separated feedback functions and explained required/optional fields.
Admin dashboard: clarified that displayed data are prototype simulations and explained percentage-index calculation.
Access and privacy: added role-based access control and data-minimization principles for public users and officers.

d. Design Improvements

After the validation process, the researcher obtained a clearer understanding of the strengths and weaknesses of the TAPTAP prototype. The validation showed that the platform workflow and menu structure were generally appropriate, but several interface and explanation elements needed refinement so that the prototype would be easier to understand and more relevant to public service users and KSOP officers.

The before-revision version mainly presented menu screens and visual components. After validation, the design explanation was strengthened by adding the website purpose, clarifying survey indicators, explaining role-based access, and improving dashboard information. The revision focused on the initial dashboard, survey flow, complaint and aspiration forms, figure captions, and officer-side reporting features.

Therefore, the design revisions focused on the following elements:

1) Adding Descriptive Information to the Initial Dashboard

The dashboard was improved by displaying a brief explanation of the website purpose and function. This addition helps users understand that TAPTAP is a prototype for satisfaction surveys, complaints, aspirations, and service reporting before they access other menus.

2) Visualizing Service User Satisfaction

Scores

The dashboard explanation was revised to show how satisfaction scores are presented as percentage indexes or simple visual summaries. Before validation, the dashboard only showed display components. After validation, the dashboard was described as a tool for helping public users and KSOP officers understand service satisfaction trends more quickly.

3) Rearranging Dashboard Elements to Make Them More Structured

Several elements on the main page were rearranged and explained more clearly so that the visual hierarchy, role selection, icons, and service information could be captured more easily by users. This revision strengthens the prototype contribution because it shows how validator feedback was translated into design improvement.

e. Product Trial

In this product trial, the assessors were expert feasibility testers, not general respondents or actual port service users. The assessment was conducted during the prototype validation stage in 2025 by two testers: Sri Mulyanto Herlambang, ST, MT as a marine transportation lecturer and supervising lecturer, and Muhammad Ridho Bintang Janaputra, S.Si as an information technology expert. The test was intended to measure initial prototype feasibility, so the findings should not be generalized as evidence of actual public-user satisfaction.

**Table 4.** Results of Product Feasibility Test of Tester 1

No.	Feasibility Test Aspects	Actual Score	Ideal Score	%Actual Score
1.	The performance of each button works according to its function.	12	15	80
2.	The initial menu display works according to its function	12	15	80

No.	Feasibility Test Aspects	Actual Score	Ideal Score	%Actual Score
3.	Satisfaction assessment questions are legible and fully available.	12	15	80
4.	Satisfaction results can be seen well	12	15	80
5.	Features work perfectly	12	15	80
<b>Amount</b>		<b>60</b>	<b>75</b>	<b>80</b>

Based on Table 4, Tester 1 produced an actual score of 60 from an ideal score of 75, resulting in a percentage index of 80%. Based on the assessment interval used in this study, this result is categorized as Agree. The score indicates that the TAPTAP prototype is feasible for further development from the aspects of button performance, initial menu display, readability and completeness of satisfaction questions, presentation of satisfaction results, and feature functionality. However, because the score has not reached the highest category, the prototype still needs improvement in usability evidence, data privacy explanation, and broader user testing.

**Table 5.** Results of Product Feasibility Test of Tester 2

No.	Feasibility Test Aspects	Actual Score	Ideal Score	%Actual Score
1.	The performance of each button works according to its function.	15	15	100
2.	The initial menu display works according to its function	13	15	86.67
3.	Satisfaction assessment questions are legible and fully available.	12	15	80

No.	Feasibility Test Aspects	Actual Score	Ideal Score	%Actual Score
4.	Satisfaction results can be seen well	12	15	80
5.	Features work perfectly	12	15	80
<b>Amount</b>		<b>64</b>	<b>75</b>	<b>85.33</b>

Based on Table 5, Tester 2 produced an actual score of 64 from an ideal score of 75, resulting in a percentage index of 85.33%. This result is categorized as Strongly Agree. The highest score was given to button performance, while several aspects remained at 80%, especially the satisfaction questions, satisfaction result display, and feature functions. This means that the prototype was considered feasible, but improvements are still needed in survey instructions, dashboard interpretation, and the technical explanation of data storage before pilot implementation.

Based on the detailed percentage-index calculations, the overall results of the product feasibility test from the two expert testers are presented in Table 6.

**Table 6.** Overall Results of Product Feasibility Test

No.	Feasibility Test Aspects	Actual Score	Ideal Score	%Actual Score
1.	Tester 1	60	75	80
2.	Tester 2	64	75	85.33
3.	Average feasibility score (Strongly Agree)	62	75	82.67

Based on Table 6, Tester 1 obtained 80%, while Tester 2 obtained 85.33%. The average score was 82.67%, which indicates that the TAPTAP prototype is generally feasible for further pilot testing. This result should be interpreted as expert feasibility evidence only, because the study has not yet involved actual public-service users, database implementation, or operational effectiveness testing.

#### 4.2 Discussion

The TAPTAP prototype was designed to answer the need for a more structured satisfaction and feedback system at KSOP

Bontang. The problem-identification stage showed that satisfaction measurement had not been conducted routinely, feedback was not yet integrated into a digital system, and service users needed easier access to submit complaints and aspirations. These needs shaped the main TAPTAP features: public surveys, complaint and aspiration forms, status checking, officer follow-up, and statistical reporting.

The public-side features directly respond to the need for accessible feedback. The survey menu allows users to evaluate service indicators, while the complaint and aspiration forms allow users to submit qualitative input. The finish page provides confirmation that the feedback flow has been completed. These features are important in a port-service context because users often require clear channels to report issues related to licensing, sailing approval, certification, and service facilities.

The officer-side features support service governance and accountability. The filling results table enables officers to view submitted reports, classify them by type, and record follow-up actions. The statistical dashboard allows officers to read satisfaction indexes and trends by service aspect. If developed into a complete system, these features can help KSOP identify service priorities and make decisions based on user feedback data.

The survey indicators are aligned with service-quality theory introduced in the literature review. Punctuality reflects reliability, service speed reflects responsiveness, staff friendliness reflects empathy and assurance, reasonable fees reflect assurance and service fairness, and facilities reflect tangibles. By mapping the indicators to SERVQUAL dimensions, TAPTAP can measure service experience in a more structured way rather than only collecting general opinions.

The feasibility results show that the prototype received 80% from Tester 1 and 85.33% from Tester 2, with an average score of 82.67%. These scores indicate that the prototype is feasible for further pilot testing. However, the result does not prove that TAPTAP has increased user satisfaction or improved service quality in actual operations. Such claims require implementation, broader public-user testing, usability measurement, and longitudinal evaluation.

The findings are consistent with Akbar (2022), who showed that user satisfaction in

information systems is related to content, accuracy, format, ease of use, and timeliness. TAPTAP applies these principles by organizing information into simple menus, using readable survey forms, and presenting satisfaction data through a dashboard. The study also supports Putra et al. (2021), who explained that digital public-service innovation can improve service efficiency when supported by clear processes and institutional readiness.

Compared with previous maritime service-quality research, this study contributes a prototype-based approach. Sitompul (2023) examined the influence of service quality on customer satisfaction in a maritime office context, while the present study translates service-evaluation needs into a Figma prototype for KSOP Bontang. This difference is important because TAPTAP focuses on the design of a feedback mechanism before full system deployment.

Therefore, TAPTAP should be viewed as an early-stage digital innovation with potential for pilot implementation, not as a finished operational system. Its main contribution is the integration of satisfaction measurement, complaint submission, aspiration collection, officer follow-up, and dashboard reporting in one prototype. Future development should test whether these features are usable, secure, and effective when applied to real port service users.

Overall, the revised discussion shows that TAPTAP can support more transparent and accountable service evaluation at KSOP Bontang. Nevertheless, the prototype still requires database development, data-security validation, user testing, and integration with KSOP information systems before it can be recommended as an operational model for maritime public-service technology.

## 5. Conclusion

This study produced a Figma-based prototype named TAPTAP for measuring port service user satisfaction at the Bontang Harbormaster and Port Authority Office (KSOP Bontang). The prototype integrates satisfaction surveys, complaints, aspirations, complaint status checking, officer follow-up, and dashboard reporting. The design was developed through six adapted R&D stages: problem identification, information collection, product design, design validation, design revision, and product trial.

The feasibility test by two expert testers showed that the TAPTAP prototype obtained a score of 80% from Tester 1 and 85.33% from Tester 2, with an average feasibility score of 82.67%. These results indicate that the prototype is feasible for further pilot testing. However, the findings should not be interpreted as evidence that TAPTAP has increased service user satisfaction, because the study has not yet involved actual public users or full operational implementation.

The limitations of this study include the small number of expert testers, the absence of direct usability testing with actual port service users, and the fact that TAPTAP is still a Figma prototype. Future research should develop the prototype into a database-based application, conduct data security testing, integrate it with KSOP information systems, and evaluate its use longitudinally after pilot implementation.

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