

Design and Development of a Web-Based Form Builder Application for Form Data Management and Processing at the Tasikmalaya City Department of Communication and Informatics

Muh. Faiz Ilham Maulana^{1*}, Syarif Hidayatulloh¹

¹Department of Informatics Engineering, ARS University, Indonesia

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ABSTRACT

The use of digital forms at the Tasikmalaya City Department of Communication and Informatics was distributed across different platforms, resulting in decentralized data management and inefficient manual recapitulation. This study aimed to design and develop a web-based form builder application that supports centralized form creation, response collection, data management, and administrative reporting. The system was developed using the Waterfall model, consisting of problem identification and data collection, requirements analysis, system design, implementation, testing, and maintenance. Data were collected through observation, questionnaire-based needs elicitation, literature review, and documentation. The developed application provides authentication, dashboards, survey statistics, form management, a dynamic form builder, submission management, regional government organization management, access control, database backup, help documentation, and data export and import. The dynamic form builder enables authorized users to construct forms using configurable input components, including text, numerical, date, selection, checkbox, and file-upload fields, without developing a separate application for each data-collection requirement. Functional evaluation was conducted using Black Box Testing across 20 scenarios covering authentication, dashboards, form construction, field configuration, input validation, response submission, data management, access control, backup, export, import, and logout. All tested functions produced outputs consistent with the predefined requirements and were classified as passed. Preliminary User Acceptance Testing involving ten participants using super-admin access produced an overall mean score of 4.15 out of 5, equivalent to 83.0% of the maximum possible score, with a 100% positive-response rate. These findings indicate that the application successfully integrates the principal stages of form-data management within a single web-based platform and received a high level of initial user acceptance. However, further evaluation involving additional user roles, security testing, performance testing, and scalability assessment is required.

Keyword: Dynamic Form Builder, Web-Based Application, Form Management, Black Box Testing, User Acceptance Testing

INTRODUCTION

Digital transformation has become an essential element of modern public administration because it enables government institutions to deliver services more efficiently, transparently, and accountably. The adoption of information and communication technology can simplify administrative procedures, accelerate data processing, and improve access to public services. Zein et al (2025) explained that digitalization contributes to the efficiency of public services by reducing administrative constraints and supporting more responsive service delivery. In addition, the implementation of web-based e-government services can enhance the efficiency and transparency of public administration, although its success remains influenced by technological infrastructure, human resource capacity, regulatory support, and users' understanding of digital services (Djabbari et al., 2024). Therefore, government institutions require integrated information systems that can support data collection and administrative activities in a structured manner.

The Tasikmalaya City Department of Communication and Informatics plays a strategic role in supporting the implementation of communication, informatics, statistics, information security, and digital government services. In carrying out its functions, the institution uses various forms for surveys, public complaints, attendance records, organizational data collection, and other administrative activities. However, based on the observations conducted in this study, these forms were still created and managed using different platforms. This fragmented practice caused form data to be distributed across several systems, making centralized monitoring and management difficult. The use of multiple platforms also required employees to collect and recapitulate data manually from different sources. This process increased the amount of time and effort required to process information and created a greater risk of data duplication, incomplete records, delayed processing, and human error. Furthermore, the absence of an integrated platform complicated data synchronization among organizational units and limited the institution's ability to monitor form submissions and prepare reports efficiently. These conditions indicate the need for a centralized system that can manage the processes of creating forms, collecting responses, storing data, processing submissions, and presenting information within a single application. Web-based applications offer an appropriate technological approach because they can be accessed through web browsers on different devices without requiring users to install a dedicated client application. Such applications can also support centralized storage, structured information management, and more flexible access to organizational data (Mokodol et al., 2025). One application of this approach is a web-based form builder, which enables authorized users to create and modify digital forms dynamically according to different data-collection requirements. Through a form builder, users can determine field types, labels, validation rules, input requirements, response options, and other form properties without manually writing program code for each new form.

Previous studies have demonstrated the potential of digital and dynamic forms for improving data-collection activities. Farih & Khotimah (2025) developed a web-based dynamic form application that supported flexible data input, input validation, temporary storage, and CSV export. The application helped reduce data-entry errors compared with spreadsheet-based data management. However, its storage mechanism was not yet fully integrated with a database. Wijanarko (2025) examined the implementation of Filament Form Builder in a Laravel-based information system and showed that the technology could simplify the creation and administration of web forms. Nevertheless, the study primarily focused on the technical implementation of the framework rather than the comprehensive management and processing of form data within a government organization. Digital forms have also been applied in more specific operational contexts. Andhika et al (2025) reported that digital forms improved the accuracy and efficiency of soil survey data collection, while Rifaldi et al (2023) demonstrated that replacing printed surveillance forms with a digital platform could reduce the risk of missing and ambiguous data. Although these studies confirm the benefits of digital data collection, the applications were developed for specific activities and did not provide a reusable form-building mechanism for creating different types of organizational forms. Other studies have focused on the digitalization of organizational administration. Irawan & Jannah (2025) developed an electronic correspondence service to accelerate administrative processes and reduce manual workloads. Meanwhile, Rani et al (2026) developed a dynamic form builder integrated with a document management system, structured data storage, and role-based access control. Although the system developed by Rani et al (2026) had characteristics similar to those required in the present study, it was designed for a general organizational environment and did not specifically address the requirements of an Indonesian local government institution. Consequently, there remains an opportunity to develop a system that combines dynamic form creation with centralized submission management, organizational-unit management, access control, data analytics, reporting, and backup mechanisms in the context of public administration.

METHODOLOGY

Research Object and Approach

This study focused on designing and developing a web-based form builder application to support the management and processing of form data at the Tasikmalaya City Department of Communication and Informatics. The research object was selected because the institution used forms for various administrative and public-service activities, while the forms and their resulting data were still distributed across different platforms. The study therefore emphasized the development of an integrated system capable of supporting dynamic form

creation, response collection, centralized data storage, submission management, and data processing. The system was developed using the Waterfall model. This model applies a structured and sequential development process in which each stage is completed before proceeding to the subsequent stage (Anisa et al., 2024). The model was selected because the system requirements could be identified and organized into clearly defined development stages. The stages applied in this study consisted of problem identification, data collection, requirements analysis, system design, implementation, testing, and maintenance.

Data Collection

The information required for system development was collected through observation, questionnaire-based needs elicitation, literature review, and documentation. Observation was conducted to examine the existing form-management process at the Tasikmalaya City Department of Communication and Informatics. This activity focused on identifying how forms were created, distributed, completed, stored, processed, and recapitulated using different platforms. Questionnaire-based needs elicitation was conducted to obtain information regarding employees' experiences, preferences, and requirements in managing forms. The collected information was used to identify the expected system functions and determine the types of features required by prospective users. Literature review was conducted by examining scholarly references related to web-based information systems, electronic government, digital forms, dynamic form builders, data management, software development methods, and system testing. Documentation was used to examine existing forms and other supporting administrative materials associated with form-management activities. Existing form templates and a Google Forms-based questionnaire previously used by the institution were employed as representative materials during system development and testing. These materials supported the evaluation of dynamic form creation, input validation, data storage, response management, and data export and import functions.

System Development Procedure

The development procedure began with identifying problems in the existing form-management process and collecting information through observation, questionnaire-based needs elicitation, literature review, and documentation. The collected information was analyzed to determine the system's functional requirements, including authentication, dynamic form creation, submission management, organizational-unit management, access control, data backup, and data export and import. The identified requirements were translated into the system architecture, database structure, user interface, and operational workflow. The design was then implemented as a web-based application using HTML, CSS, JavaScript, PHP, and MySQL. Functional testing was conducted using Black Box Testing by comparing the actual output of each function with the expected output. The maintenance stage was subsequently performed to address identified errors and make the necessary functional adjustments.

Preliminary User Acceptance Testing

Following functional testing, preliminary User Acceptance Testing was conducted with ten participants using super-admin access. Participants tested the main application features and completed a 12-item questionnaire covering ease of use, navigation, dashboard clarity, form-builder usability, submission management, data export, system suitability, and willingness to use the application. Each statement was rated on a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). The results were analysed descriptively using the mean score, percentage of the maximum possible score, and positive-response rate, with scores of 4 and 5 classified as positive responses.

RESULTS AND DISCUSSION

System Implementation

The development process resulted in a web-based application called Form Diskominfo, which was designed to centralize the creation, distribution, collection, management, and processing of form data at the Tasikmalaya City Department of Communication and Informatics. The application integrates user authentication, dashboards,

form management, a dynamic form builder, submission management, regional government organization management, user access control, database backup, help documentation, and data export and import within a single system. The system distinguishes between two administrative roles, namely super admin and admin. The super admin has broader authority to create and configure forms, manage users and regional government organizations, regulate access rights, configure the application, and perform database backups. Meanwhile, the admin can access and manage functions according to the authority assigned within the system. This role differentiation supports more structured system administration because access to forms, submissions, organizational information, and configuration functions can be adjusted according to user responsibilities.

The login page serves as the initial authentication mechanism. Registered users are required to enter a valid email address and password before accessing the application. Valid credentials direct users to the main dashboard, whereas invalid credentials are rejected by the system. After successful authentication, the main dashboard displays summary information, including the number of regional government organizations, forms, respondents, and active forms. The application also provides a survey statistics dashboard that presents survey-related information and graphical summaries. The implementation of these interfaces is presented in Figure 1.



(a)



(b)



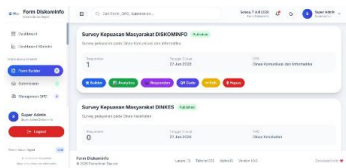
(c)

Figure 1: System Authentication and Dashboard Interfaces: (a) Login Page, (b) Main Dashboard, and (c) Survey Statistics Dashboard

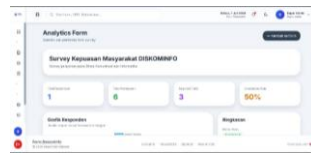
As shown in Figure 1, the dashboard implementation shows that the application does not merely store form data but also presents summarized information for monitoring purposes. This function is consistent with the role of a web-based information system in supporting structured data storage and providing flexible access through internet-connected devices (Mokodol et al., 2025). In the context of government administration, the centralized presentation of information also corresponds to the implementation of web-based e-government services discussed by Djabbari et al (2024), which can support more effective and transparent administrative processes.

Form Management and Data Processing

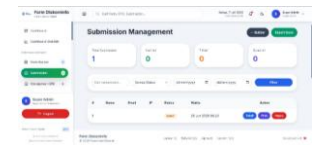
The Form Management module functions as the main component for managing forms and the data generated through them. It integrates form management, analytics, submission management, and regional government organization management. The form-management page displays information such as the form title, description, publication status, number of respondents, creation date, and associated organization. It also provides several actions, including Builder, Analytics, Respondents, QR Code, Edit, and Delete. The Analytics feature presents a summary of each form, including the number of respondents, questions, required fields, completion rate, response trends, and publication status. Through this feature, administrators can monitor form activity without manually recapitulating all responses. The application therefore extends the role of a digital form beyond data collection by also supporting the presentation and initial analysis of the collected data. The Submission module is used to manage responses submitted by respondents. It displays the total number of submissions, submissions received on the current day, submissions received within seven days, and submissions received during the current month. It also provides search, status-filtering, date-filtering, detail-viewing, printing, deletion, and Excel export functions. These functions allow administrators to retrieve and process responses without manually combining data from different form platforms. The regional government organization management feature classifies forms according to the relevant organizations or work units. It presents organizational information together with the number of forms and respondents associated with each organization. This classification allows form and submission data to be organized based on the unit responsible for managing them. The implementation of the form-management, analytics, and submission interfaces is presented in Figure 2.



(a)



(b)



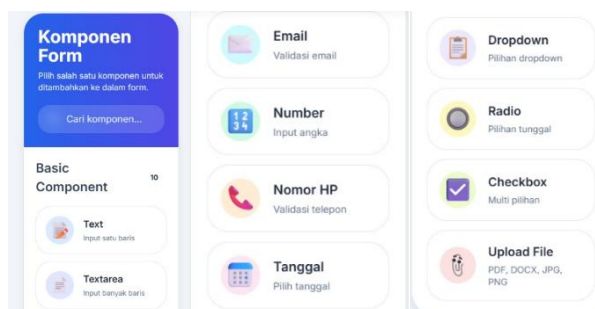
(c)

Figure 2: Form Management and Data Processing Interfaces: (a) Form Management, (b) Form Analytics, and (c) Submission Management

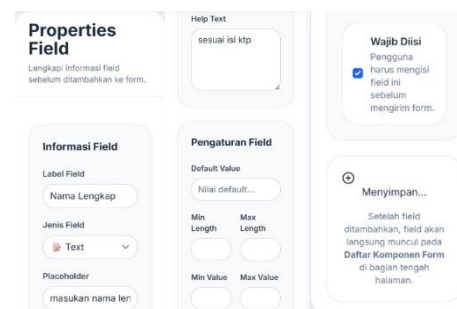
As shown in Figure 2, the three interfaces are interconnected within the form-data management workflow. The Form Management interface provides access to form configuration and related actions, the Analytics interface summarizes the data generated from each form, and the Submission Management interface supports the retrieval and further processing of respondents' submissions. The availability of different input components and configurable properties provides flexibility in constructing forms for surveys, complaints, attendance records, evaluations, organizational data collection, and other administrative activities. This implementation is consistent with Wijanarko (2025), who explained that a form builder can simplify the creation and administration of forms in a web-based information system. The findings also support Farih & Khotimah (2025), who demonstrated that dynamic web forms can reduce repetitive form-development activities and support more structured data input. However, the present system extends the form-builder concept by connecting configurable fields with submission storage, respondent monitoring, analytics, organizational management, data export, and backup. The developed feature also has similarities with the system proposed by Rani et al (2026), which combined dynamic form creation, structured storage, document management, and role-based access. Nevertheless, their study focused on a general organizational environment, whereas the present application was specifically developed to support form management at the Tasikmalaya City Department of Communication and Informatics.

Dynamic Form Builder

The dynamic form builder constitutes the principal feature of the developed application. This feature allows the super admin to create and modify forms without manually writing source code for every new form. The form-construction interface can be accessed through the Builder action available for each form in the Form Management module. The system provides several input components, including Text, Textarea, Email, Number, Phone Number, Date, Dropdown, Radio Button, Checkbox, and File Upload. These components accommodate various data-collection requirements, ranging from short textual responses and numerical information to multiple-choice answers and supporting documents. After selecting an input component, the administrator can configure its properties, including the field label, field type, placeholder, help text, default value, minimum and maximum character limits, minimum and maximum numerical values, and required-field status. These settings allow each field to be adapted to the type and structure of the information to be collected.



(a)



(b)

Figure 3: Dynamic Form Builder Interface: (a) Available Form Components and (b) Field Properties Configuration

As shown in Figure 3, the dynamic form builder enables authorized users to construct forms by selecting various input components and configuring their properties according to specific data-collection requirements. The availability of text, numerical, choice-based, date, and file-upload fields, together with settings for field labels, placeholders, help text, input limits, and required-field status, demonstrates that the system can accommodate different form structures within a single application.

The availability of different input components and configurable properties provides flexibility in constructing forms for surveys, complaints, attendance records, evaluations, organizational data collection, and other administrative activities. This implementation is consistent with Wijanarko (2025), who explained that a form builder can simplify the creation and administration of forms in a web-based information system.

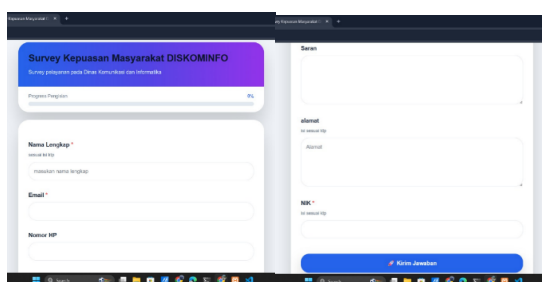
Form Completion and Data Export Interfaces

Published forms can be distributed to respondents through a direct access link or QR code. The form-completion page displays the form title, description, progress indicator, and input fields previously configured by the administrator. Respondents can complete the form without accessing the administrative dashboard. When a respondent submits a form, the system validates the entered information. Fields marked as required must be completed before the response can be submitted.

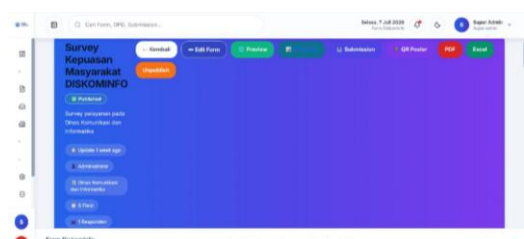
When the input satisfies the validation rules, the response is stored in the database and becomes available on the Submission page for further management. The required-field mechanism helps prevent the submission of incomplete responses. This function is consistent with Suyoko et al (2024), who explained that electronic forms can support data completeness by generating warnings when required parameters have not been fulfilled. The use of field types also helps ensure that data are entered according to the expected format.

The application also provides PDF and Excel export functions. PDF export supports documentation and printing requirements, whereas Excel export allows submission data to be processed further using spreadsheet software. The import function facilitates the transfer of existing organizational or form data stored in Excel or CSV files into the application. In addition, the database backup feature allows the super admin to create a copy of the system database to support data availability.

Published forms can be accessed by respondents through a direct link or QR code. As shown in Figure 4(a), the form-completion interface presents the form title, completion progress, input fields, and submission button. Figure 4(b) presents the form distribution and export functions, including QR Poster, PDF, and Excel.



(a)



(b)

Figure 4: Form Completion, Distribution, and Data Export Interfaces: (a) Respondent Form Completion Interface and (b) Form Distribution and Data Export Interface

As shown in Figure 4, the developed application supports an integrated workflow from form distribution and completion to data storage and export. Published forms can be accessed by respondents through a direct link or QR code.

The form-completion interface presents the form title, completion progress, input fields, and submission button, while the administrative interface provides Preview, QR Poster, PDF, and Excel functions for form distribution

and data processing. Before a response is submitted, the system validates the information entered by the respondent. Fields marked as required must be completed, and responses that satisfy the validation rules are stored in the database and made available through the Submission module. This mechanism is consistent with Suyoko et al (2024), who explained that electronic forms can support data completeness by providing warnings when required parameters have not been fulfilled.

The PDF and Excel export functions support different administrative requirements. PDF export facilitates documentation and printing, whereas Excel export allows submission data to be processed further using spreadsheet software. The QR Poster function also supports form distribution by providing respondents with an alternative method of accessing published forms. These functions reflect the data-management process described by Hanifah & Nasution (2025), which includes the collection, validation, storage, processing, presentation, and utilization of data.

Comparative Analysis with Google Forms

To clarify the practical contribution of the developed application, a feature-based comparison was conducted between Form Diskominfo and Google Forms. Google Forms was selected because it had previously been used as one of the digital form platforms within the institution.

The comparison focused on functions related to the operational requirements identified in this study, including form creation, response management, analytics, organizational classification, administrative access, reporting, and data backup. Google Forms is a general-purpose platform that supports the creation and distribution of online forms, real-time response summaries, collaboration, response storage in Google Sheets, and response downloads in CSV format (Wijayanti *et al.*, 2023).

It also allows forms to be shared with responders and collaborators through configurable access permissions. In comparison, Form Diskominfo was developed specifically to integrate form-related activities within the operational environment of the Tasikmalaya City Department of Communication and Informatics.

Its features, including organizational-unit management, role-based administrative access, submission management, institutional dashboards, direct PDF and Excel export, and database backup. A summary of the functional comparison between Google Forms and Form Diskominfo is presented in Table 1.

Table 1: Functional Comparison between Google Forms and Form Diskominfo

Comparison aspect	Google Forms	Form Diskominfo
Form creation	Supports online forms and different question formats	Supports dynamic forms with configurable field components and properties
Form distribution	Supports publication and sharing through links, email, social media, or website embedding	Supports published links and QR Poster distribution
Response storage	Responses can be viewed in Google Forms or linked to Google Sheets	Responses are stored in the application database and integrated with the Submission module

Response management	Provides summary, question-level, individual-response views, Google Sheets integration, and CSV download	Provides submission summaries, search, date and status filters, details, printing, deletion, and Excel export
Analytics	Provides automatic response summaries and charts for individual forms	Provides a central survey statistics dashboard and form-level analytics
Administrative access	Supports form ownership, collaborators, editor access, and responder-access settings	Implements differentiated <i>super admin</i> and <i>admin</i> roles within the institutional system
Organizational classification	General-purpose file and form organization	Provides a dedicated regional government organization management module
Reporting and export	Supports response transfer to Google Sheets and CSV download	Provides direct PDF and Excel export for institutional documentation and further processing
Data import	Not the principal workflow identified in the standard functions reviewed	Supports the import of existing Excel or CSV data
Database backup	Platform data are managed within the Google ecosystem	Provides a database-backup function managed by the <i>super admin</i>
Institutional customization	Designed for general surveys, quizzes, and online data collection	Specifically designed for form-management requirements at the Tasikmalaya City Department of Communication and Informatics

As presented in Table 1, both platforms support digital form creation, distribution, response collection, and basic analysis. Google Forms offers an established general-purpose environment with collaboration, configurable responder access, automatic response summaries, Google Sheets integration, and CSV export. These capabilities make it suitable for rapidly creating and distributing individual forms. The practical contribution of Form Diskominfo lies in its institutional integration rather than in replacing all general capabilities of Google Forms. The application connects dynamic form construction with regional government organization classification, differentiated administrative roles, submission monitoring, institutional dashboards, reporting, data import, and database backup within one locally managed system. Consequently, administrators can manage multiple organizational forms and their resulting data through interconnected modules instead of treating every form as an independently managed document.

Functional Testing Results

Black Box Testing was conducted to determine whether the application functions produced outputs consistent with the specified functional requirements. The testing focused on the relationship between system inputs and outputs without examining the internal source code or algorithmic structure. A total of 20 testing scenarios were conducted. The tested functions included valid and invalid login, main dashboard presentation, survey statistics, form management, form analytics, submission management, regional government organization management,

form-builder access, field addition, field-property configuration, required-field validation, form submission, user access management, system configuration, database backup, help documentation, PDF export, Excel export, data import, and logout. A summary of the testing results is presented in Table 2.

Table 2: Summary of Black Box Testing Results

Tested module	Functions evaluated	Result
Authentication	Valid login, invalid login, and logout	Passed
Dashboard	Main dashboard and survey statistics	Passed
Form management	Form list, publication status, actions, and analytics	Passed
Dynamic form builder	Field addition and property configuration	Passed
Form completion	Required-field validation and response submission	Passed
Submission management	Search, filtering, details, printing, and deletion	Passed
Organization management	Organization data and form classification	Passed
Access and configuration	User roles, access rights, and system settings	Passed
Data management	Backup, PDF export, Excel export, and data import	Passed
User assistance	Usage guide, frequently asked questions, and documentation	Passed

As presented in Table 2, all tested modules obtained a Passed result. The authentication module accepted valid credentials, rejected invalid credentials, and terminated user sessions correctly through the logout function. The dashboard modules displayed the required summary and statistical information, while the form-management module provided access to form configuration, analytics, respondents, and related actions. The dynamic form builder also operated according to the expected scenarios. The system successfully displayed the available input components, added selected fields, saved field-property configurations, and applied required-field validation. In addition, valid responses submitted through published forms were stored in the database and displayed through the Submission module. The export, import, backup, access-management, and help functions also produced outputs consistent with their respective test scenarios. The test results indicated that all major functions were successfully classified during functional testing. These results are consistent with the principle of Black Box Testing described by Maulida et al (2025), in which system functionality is evaluated through the relationship between input and output without examining the internal program structure. The use of expected results, actual results, and final status also corresponds to the functional test-case structure explained by Jailani & Yaqin, (2024).

The successful results indicate that the developed application fulfilled the functional requirements defined in this study. In particular, the successful testing of form construction, field configuration, input validation, response storage, submission management, and data export demonstrates that the principal form-management workflow was implemented as intended. The Passed results indicate that the tested functions operated in accordance with the predetermined functional scenarios.

Preliminary User Acceptance Testing

Following the functional evaluation, preliminary User Acceptance Testing was conducted to obtain an initial assessment of user acceptance of the developed application. The evaluation involved ten participants who tested the application using super-admin access. After completing the assigned testing scenarios, the participants assessed the application through 12 statements using a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The assessment covered ease of use, navigation, dashboard clarity, form-builder usability, field configuration, input validation, submission management, data export, centralized form management, institutional suitability, functional suitability, and willingness to use the application. A summary of the preliminary UAT results is presented in Table 3.

Table 3: Preliminary User Acceptance Testing Results

No.	Assessment statement	Mean score	Interpretation
1	The Form Diskominfo application is easy to access and use	4.10	High
2	The menus and navigation within the application are easy to understand	4.30	Very high
3	The dashboard information is presented clearly	4.10	High
4	The dynamic form builder is easy to use for creating and configuring forms	4.00	High
5	The input components and field-property settings meet form-creation requirements	4.20	High
6	Required-field validation helps ensure that the necessary data are completed	4.20	High
7	Submitted data are easy to monitor and manage through the Submission module	4.20	High
8	The PDF and Excel export functions are useful for documentation and further data processing	4.10	High
9	The application supports more centralized form and data management	4.10	High
10	The application is suitable for supporting administrative and data-collection activities at the institution	4.10	High

11	The application functions are consistent with user requirements	4.10	High
12	The participants are willing to use Form Diskominfo in operational activities	4.30	Very high
Overall mean		4.15	High

As presented in Table 3, the preliminary UAT produced an overall mean score of 4.15 out of 5, corresponding to 83.0% of the maximum possible score. Across the 10 participants and 12 assessment statements, a total of 120 item-level responses were collected. All item-level responses received scores of either 4 or 5, resulting in a 100% positive-response rate. These results provide an initial indication that the participants positively accepted the application in terms of its functionality, ease of use, and suitability for institutional form-management activities. The highest mean scores were obtained for the clarity of the menus and navigation and the participants' willingness to use the application in operational activities, with both items receiving a score of 4.30. The navigation result indicates that the application structure was generally understandable to the participants when accessing its main modules and functions. Meanwhile, the high willingness-to-use score suggests that the participants considered the application potentially suitable for supporting form-related administrative activities.

The suitability of the input components, required-field validation, and submission-management functions each obtained a mean score of 4.20. These results indicate that the participants positively assessed the application's principal form-management workflow, beginning with form construction and field configuration and continuing through response validation, storage, monitoring, and management. This finding complements the Black Box Testing results, which demonstrated that the same functions operated according to the predefined functional scenarios. While Black Box Testing confirmed functional conformity from a technical perspective, the preliminary UAT provided an initial assessment from the user perspective. The lowest mean score was recorded for the ease of using the dynamic form builder, with a value of 4.00. Although this score remained within the high category, it indicates that the form-builder interface represents the aspect with the greatest opportunity for improvement compared with the other evaluated functions. Further refinement may therefore focus on simplifying field-configuration steps, improving interface guidance, and providing clearer instructions for users who are not yet familiar with dynamic form construction. Overall, the preliminary UAT indicates a high level of initial acceptance of Form Diskominfo among the participants using super-admin access.

System Implications and Limitations

The developed application provides a technical foundation for centralized form-data management at the Tasikmalaya City Department of Communication and Informatics. Its principal implication lies in the integration of dynamic form creation, response collection, submission management, organizational classification, analytics, access control, reporting, data transfer, and database backup within a single web-based platform. Through this integration, administrators can manage forms and their resulting data without relying on several disconnected platforms.

The application can therefore support surveys, complaints, attendance records, evaluations, internal data collection, and other form-based administrative activities. From an administrative perspective, the centralized workflow has the potential to reduce repetitive data-management activities and support more structured monitoring and reporting. This implication is consistent with Djabbari et al (2024), who reported that web-based e-government services can support administrative efficiency and transparency. Pratama & Armin (2024) similarly found that electronic public-service applications can improve accessibility and facilitate service monitoring. However, the present study did not directly evaluate changes in public-service quality or quantitatively compare the time required to perform monitoring, recapitulation, and data-processing activities before and after system implementation. Therefore, the findings demonstrate the system's functional capability

to support centralized administration, but they do not establish a measured improvement in operational efficiency or service quality.

Several limitations should be considered when interpreting the results. First, the evaluation was limited to functional Black Box Testing and did not examine the internal source code, program logic, or code-level quality. Second, the application was not evaluated under conditions involving a large number of simultaneous users; therefore, its performance and stability under high concurrent-user loads have not yet been established. Third, comprehensive security testing, including assessments of SQL injection, cross-site scripting, brute-force login attempts, and other potential vulnerabilities, was not conducted.

Although authentication and role-based access control were implemented, the present findings do not establish the application's overall security resilience. The study did not include usability testing or User Acceptance Testing; therefore, the perceived ease of use, user satisfaction, and acceptance of the application were not evaluated. In addition, the effect of input validation on response completeness and accuracy was not measured quantitatively. The testing results only confirm that the required-field and input-processing functions operated according to the predefined scenarios. Further studies should therefore evaluate usability, user acceptance, security, performance, scalability, operational efficiency, and data quality before broader implementation.

Overall, the developed application fulfilled the functional requirements defined in this study and provides a more integrated mechanism for managing forms and their resulting data. Nevertheless, broader organizational implementation should be accompanied by further technical and user-oriented evaluations to ensure that the application remains reliable, secure, usable, and scalable in actual operational conditions.

CONCLUSION

This study successfully developed a web-based form builder application to support the management and processing of form data at the Tasikmalaya City Department of Communication and Informatics. The application integrates authentication, dashboards, dynamic form creation, submission management, regional government organization management, access control, analytics, database backup, and data export and import within a single platform. The dynamic form builder enables authorized users to create different forms using configurable input components and field properties without developing a separate application for each data-collection requirement. Consequently, the developed system provides a more centralized mechanism for creating forms, collecting responses, monitoring submissions, and preparing form data for administrative reporting. Black Box Testing showed that all tested functions operated according to the predefined functional scenarios. Preliminary User Acceptance Testing involving ten participants using super-admin access produced an overall mean score of 4.15 out of 5, equivalent to 83.0% of the maximum possible score, with a 100% positive-response rate. These results indicate that the application fulfilled the functional requirements established in this study and can support centralized form-data management within the institution. The preliminary UAT also indicates a high level of initial user acceptance. However, the findings are limited to functional conformity and an initial acceptance assessment involving participants using super-admin access and do not establish measurable improvements in operational efficiency, comprehensive multi-role usability, security, performance, scalability, or data quality. Further research should therefore include broader usability and User Acceptance Testing involving additional user roles, security assessment, performance and load testing, and quantitative evaluation of operational efficiency and response quality before broader organizational implementation.

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