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E-Government Development to Increase Transparency and Efficiency in the Communication and Information Service (A Case Study in Semarang City)

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Abstract

The advancement of information technology has driven local governments to develop e-Government solutions to improve public services. This study aims to develop the Sapa Mbak Ita application at the Semarang City Department of Communication and Informatics as an integrated public complaint channel. The research began with a literature study and field study to identify problems, define objectives, and collect data through direct observation, structured interviews, and additional literature review. Primary and secondary data were analyzed using the waterfall system development model, including requirements analysis, system design, implementation, testing, and maintenance. The developed system features complaint status tracking, integration with relevant agencies, and transparent follow-up processes. Testing with 2023 data shows the system handled 6.129 reports, with 81,1% (4.974) resolved, 17 conditionally closed, 17,9% (1.097) in progress, and 0,7% (41) unaddressed. The most used channels were WhatsApp (50%) and the Sapa Mbak Ita mobile app (16%). The study concludes that the application effectively improves the efficiency and transparency of public complaint handling, though improvements in data security and user interface are needed.

Keywords: *e-Government, transparency, public services, complaint application, Diskominfo Semarang*

1. Introduction

In the current era of globalization and the digital revolution, technological transformation has become a crucial pillar of governance. Governments across the globe are increasingly adopting e-Government as a strategy to improve public services, transparency, and bureaucratic efficiency [1]. E-Government, or electronic government, is the use of information and communication technology (ICT) to support government operations, deliver public services, and facilitate interactions between the government, the public, and the private sector. Many developed countries, such as the United States, South Korea, and Singapore, have successfully implemented e-Government and reaped numerous benefits, including reduced operational costs, increased service accessibility, and greater transparency in public information management [2]. Internationally, e-Government implementation is not only a symbol of modernization but also considered an effective solution to address the problems of slow bureaucracy, corruption, and inefficiency. Our research aims to analyze the effectiveness of e-Government at the Semarang City Communications and Information Agency (Kominfo) in increasing transparency and efficiency in public services. We will also examine how the adoption of information technology can overcome obstacles faced by traditional bureaucracies, such as slow decision-making processes and lack of public information accessibility. Through a more comprehensive e-Government implementation, Semarang City is expected to improve the quality of public services, strengthen transparency in regional financial management, and encourage public participation in decision-making. By leveraging international experience and

adapting it to the local context, Semarang City can become a model for successful e-government implementation in Indonesia.

2. Method

The research began by examining and experiencing the public service situation in Semarang City, then identifying common issues and ways to convey complaints about these services. In line with technological developments, the researchers attempted to integrate this approach with social media to ensure that public complaints could be quickly conveyed to the Semarang City Government, specifically the Semarang City Communications and Information Technology Office. The research flowchart is illustrated in the figure below:

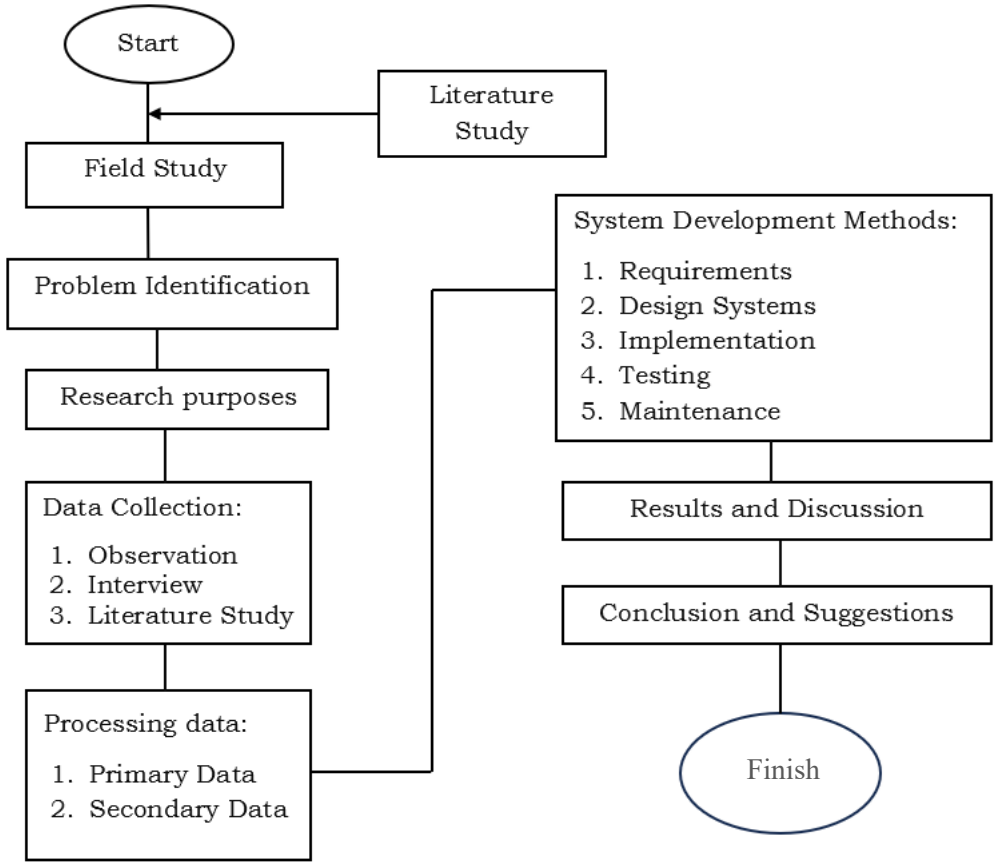

Figure 1. Research Flowchart

The research implementation process was carried out using several methods, namely:

2.1. Collecting Data Method

Data collection methods are necessary to obtain accurate and relevant information related to analysis in e-government research in Semarang City. The data collection methods are as follows:

1. Observation Method is a method of collecting data by observing phenomena, events, behaviors, or activities occurring within a given area without manipulating the data [3][4]. The observation method involves direct observation at the Semarang City Communication, Informatics, and Statistics Office (DISKOMINFO).
2. Interview Method, by conducting an interview with the Head of the Communication and Information Service [5][6].
3. Literatur Review is a method of collecting references from various literature, journals, books and relevant previous research [7][8][9].

2.2. Data Types

The data sources in this study consist of two categories, namely [10][11][12]:

1. Primary Data, this is data obtained directly from primary sources through interviews and observations. In this study, primary data was collected from interviews with the Head of the Communications and Information Technology Office. The interviews were conducted in a structured manner to gather information

about the current public services in Semarang City and expectations from the digital system application used.

2. Secondary Data, is supporting data obtained from various relevant literature sources.

2.3. System Development Method

In research related to the analysis of existing systems, researchers used the Waterfall Approach model, as illustrated below [11][13][14][15]:

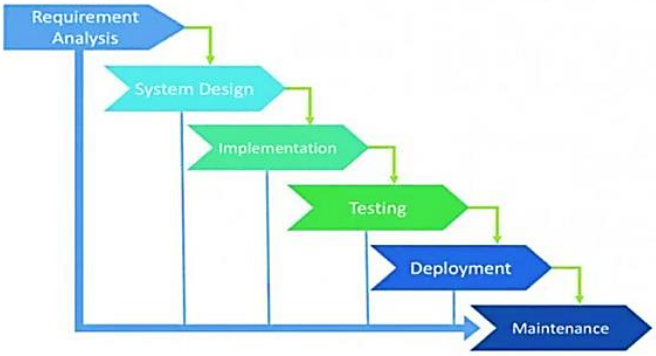

Figure 2. ***Waterfall Approach Method***

The waterfall method is used because it's easy to apply and covers the entire application development process. The waterfall method uses five stages, as follows:

1. Requirements Definition
   At this stage, the developer will collect data and analyze the system's requirements in depth from potential users through interviews and observations. The collected results will form a requirements document that will serve as a reference for the entire development process.
2. System and Software Design
   At this stage, the system architecture, database and user interface design are designed based on the needs that have been collected and analyzed in the previous stage.
3. Implementation and Unit Testing
   At this stage, development is carried out by creating program code based on the data and development objectives. Researchers begin writing code, building the system, and conducting unit testing.
4. Integration and System Testing
   This stage involves testing the application or product that has been developed to ensure that the application or product complies with the specified specifications and is error-free.
5. Operation and Maintenance
   At this stage, maintenance is carried out after the developed application has been used.

3. Results and Discussion

These should be brief and placed at the end of the text before the references.

3.1. Technology Infrastructure and Systems Used

The Information Management and Public Communication Channels, Infrastructure Management, and Statistics Divisions are part of the strategic services provided by the Semarang City Communication, Informatics, Statistics, and Cryptography Agency (Diskominfo). These services aim to support increased transparency, efficiency, and effectiveness in the implementation of government and public services based on information technology. The main services provided by the Semarang City Diskominfo include:

1. Semarang City BTS Tower Location Handover Service.
2. Semarang City PPID (Information and Documentation Management Officer) Services.
3. Emergency Call Service 112 Semarang City.
4. Semarang City CCTV Services.

In implementing e-Government, the Semarang City Communications and Informatics Office has developed an adequate and integrated information technology infrastructure. One of the main platforms used is "Sapa Mbak Ita," a digital-based public complaints channel that utilizes various media, such as mobile apps, websites, SMS, and social

media, to facilitate public access to services. This system enables a fast, accurate, and structured complaints process, thereby increasing transparency and efficiency in public services.

3.2. Reports Entered into the Diskominfo Channel

Sapa Mbak Ita is a public complaints and aspiration channel that replaces Laporhendi, a similar channel that operated during the previous governor's term. The channel was officially introduced to the public in 2022 and continues to innovate to improve its service to various complaints and criticisms from the Semarang City community. The following table summarizes the number of complaints received through the official channel:

Table 1. Number of Complaints Received in 2023

Source	Total
Website	667
SMS	8
Android SP4N	31
Come Directly	0
WhatsApp	3.068
Instagram	159
Twitter	169
Mobile App SAPA MBAK ITA	956
LAPORGUB	1.071
Total Input Amount	6.129

Source: DISKOMINFO Data (SAPA MBAK ITA) 2023

Based on the table presented, it can be concluded that the people of Semarang City have a strong preference for online complaints. The table shows that complaints via WhatsApp are the most widely used medium, with 3,068 complaints in 2023. Second place is the LAPORGUB application, which is used by the public, with 1,071. These data indicate that convenience and accessibility are determining factors for the platform chosen by the public. Furthermore, the third-highest number of complaints is the Sapa Mbak Ita mobile application, which is a new platform, with 956 complaints.

3.3. Managing Reports

All complaints received through the Communications and Information Service (Diskominfo) channel are coordinated and assigned to the relevant Regional Apparatus Organizations (OPD) in Semarang City for follow-up. Each complaint is submitted in an accurate format and report. The following is a breakdown of the overall complaint report categories:

Table 2. Managed Report Categories

No	Managed Report Categories	Total
1	Complaints	6.114
2	Requests for Information	4
3	Aspirations	12
	Total	6.129

Source: DISKOMINFO Data 2023

From the table, there are follow-up responses with different statuses, the detailed details of the follow-up response status from the report category are as follows:

1. Complaints

Table 3. Follow-up Report

No	Follow-up Response	Total
1	Not Yet	41
2	Process	1.097
3	Completed	4.958
4	Conditionally Completed	17
	Total	6.113

Source: DISKOMINFO Data 2023

2. Requests for Information

Table 4. Number of Information Requests

No	Follow-up Response	Total
1	Not Yet	0
2	Process	0
3	Completed	4
	Total	4

Source: DISKOMINFO Data 2023

From the table above, there are only four requests for information received through the Communications and Information Service's Sapa Mbak Ita channel, and all four requests have been resolved. Based on the detailed follow-up status for each category of reports received, including complaints, aspirations or suggestions, and requests for information, the total number of reports can be seen in the following table:

Table 5. Follow-up Response Rate Sapa Mbak Ita

No	Follow-up Rate Response	Total
1	Not Yet	41
2	Process	1.097
3	Completed	4.974
4	Conditionally Completed	17
	Total	6.129

Source: DISKOMINFO Data 2023

3. Suggestions or Aspirations

Table 6. Follow-up Response

No	Follow-up Response	Total
1	Not Yet	0
2	Process	0
3	Completed	12
	Total	12

Source: DISKOMINFO Data 2023

From the table above, it is shown that throughout 2023, there were 12 aspirations or suggestions from the people of Semarang City submitted through the Diskominfo Sapa Mbak Ita Channel and have been followed up so that the status of this category is completed.

4. Sapa Mbak Ita App Assessment
    1. Availability of Information Access
    Many government platforms provide easily accessible information, which is an indicator of public satisfaction with government services. The Instagram account "Sapa Mbak Ita," for example, has

published 1,137 posts containing various information about Semarang City developments, follow-up reports, guides on how to use the Sapa Mbak Ita app, and more. These posts demonstrate the government's commitment to providing information to the Semarang public.

2. Ease of Use of Government Services
   Government services cover various aspects of public life, such as health, employment, and public facilities. Ease of access and use of these services can increase public satisfaction, as they perceive that the services are truly designed to meet their needs.
3. Service Hours
   The speed of accessing and receiving government services is an important indicator, as it allows the public to assess the extent to which the government is responsive to their needs.
4. Community Participation
   Public involvement in decision-making and various activities can increase satisfaction, as residents feel valued by the government. This is evident in the increasing number of reports received by Sapa Mbak Ita. Public trust is growing, making them more confident in submitting reports directly to the Semarang City government as a form of active participation in city governance.
5. Service Fee
   The public generally pays close attention to the cost of services provided. This is because they expect the best service from the government without being burdened with high costs. In other words, the public should not have to spend a lot of money to use government-provided facilities. As an indicator, Sapa Mbak Ita does not charge any fees to reporters because providing services or responding to public reports is a government obligation stipulated in the Mayoral Regulation that forms the basis for the Sapa Mbak Ita channel. This is also evidenced by the absence of comments on Sapa Mbak Ita's Instagram account discussing costs for handling reports.
6. Security and Order
   Every citizen expects safe and secure services. Safe means the service is able to properly and securely keep the user's identity confidential. However, the author found several accounts complaining about identity leaks, which have had repercussions for those who reported them. The following comments relate to identity leaks.

3.4. Follow-up of the Semarang City Regional Apparatus Organization

In resolving reports or complaints received through Sapa Mbak Ita, support is required from various Regional Apparatus Organizations (OPD) of Semarang City related to the report. These OPDs include the Transportation Agency, Environmental Agency, Social Agency, Public Works Agency, Housing and Residential Area Agency, Public Order Agency (Satpol PP), PDAM Tirta Moedal, etc. However, among the many OPDs that contribute to handling complaints in Sapa Mbak Ita, there are several OPDs that received the most reports throughout 2023. The following is a recapitulation of the five OPDs with the greatest number of reports during 2023 as follows:

Table 7. Recapitulation of Five OPDs Receives Many Reports

No	OPD	Total
1	Dinas Perhubungan	1.234
2	Dinas Pekerjaan Umum	1.103
3	Dinas Perumahan dan Pemukiman	751
4	Satpol PP	331
5	PDAM Tirta Moedal	310

Source: Diskominfo Channel

The table above shows that the Transportation Agency received the most reports or complaints in 2023. This is due to the Agency's extensive scope of responsibilities, which led to a high number of reports. The Public Works Agency came in second with a total of 1,103 reports throughout 2023. The high number of reports received by the Public Works Agency was influenced by the problem of damaged roads in Semarang City.

3.5. Steps to Use the Sapa Mbak Ita Application

To use the Sapa Mbak Ita application, you can download it via Playstore, here are the steps:

1. Login Page

The user will be redirected to the login page.

Figure 3. Login Page

2. Home Page
   After logging in, users will be directed to the main page of the application.

Figure 4. Home Page

3. Making a Complaint Report
   Users can create a complaint report through the features available in the app. Here's how to create a complaint report:

Figure 5. Making a Complaint Report

To ensure that reports are handled quickly, here are the steps to report properly and correctly in the Sapa Mbak Ita application:

1. Open the Sapa Mbak Ita application, open the Complaint Channel.
2. Contents of the Report Describe the chronology, write the report well and according to the format if using the WhatsApp application.
3. Location and Time, state the name, time and place clearly.
4. Good language, use good and correct Indonesian.
5. Attachments, attach supporting evidence of the incident if available.
6. Submit Report, submit the report and wait for it to be verified through the system.

3.6. Standard Operating Procedure (SOP) for Greetings from Ms. Ita on the Communications and Information Technology Channel

The first step to filing a complaint is to open the Complaints Channel, then fill out the report chronologically and accurately, following the format if using WhatsApp. Then, clearly state the name, time, and location, using correct Indonesian. The next step is to attach supporting evidence of the incident, if available. Then, submit the report and wait for verification through the system. The standard operating procedure (SOP) for the Sapa Mbak Ita application is explained in the image below:

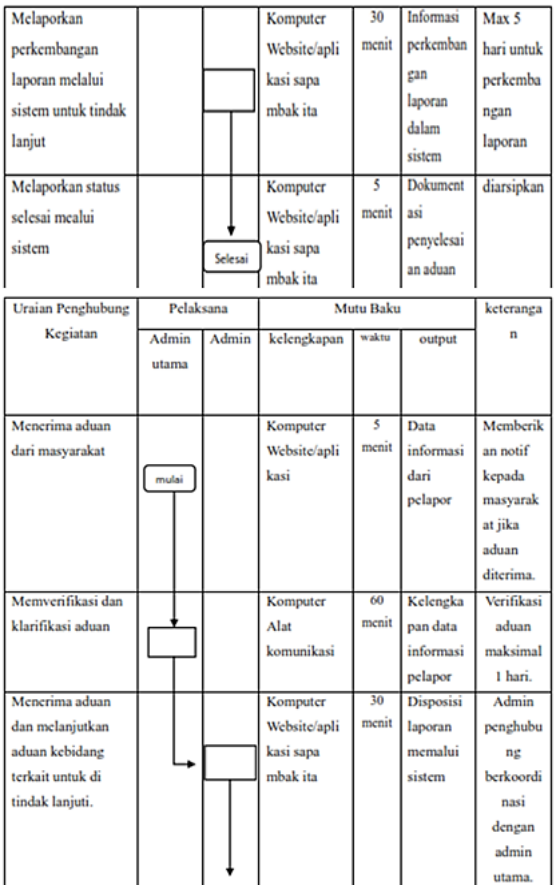

Figure 6. Standard Operating Procedure for The Sapa Mbak Ita Application

Based on the results of this study, we measured the level of effectiveness, which is presented in a pie chart. The graph of incoming public complaints is shown in the following figure:

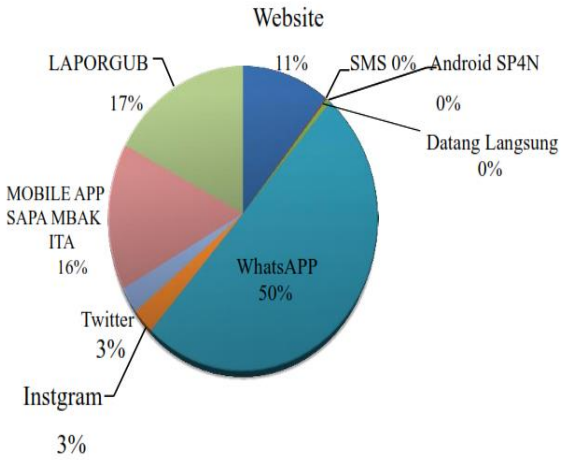

Figure 7. Complaint Graph

The graph shows that WhatsApp social media usage is 50%, the highest compared to other platforms. This demonstrates that information technology is an effective means of communication. The following is a graphic depicting the follow-up to the complaint:

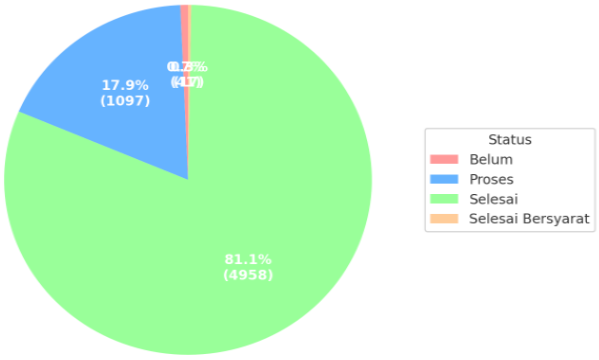

Figure 8. Complaint Follow-up Chart

From the graph of follow-up on incoming complaints, it can be seen that the completed status dominates, namely 81.1%, this shows that incoming public complaints can be resolved immediately.

4. Decision

The Sapa Mbak Ita application is an e-Government application managed by the Semarang City Communications, Informatics, and Statistics Office to connect the public with the Mayor of Semarang. This application aims to facilitate the public in conveying aspirations and complaints and increase public participation in the development of Semarang City. Official Sapa Mbak Ita channels include SMS 1.708, Twitter @sapambakita, the website https://sapambakita.lapor.go.id/, WhatsApp 081215000512 and the SAPA MBAK ITA application.

In 2023, 6,129 complaints were received through Sapa Mbak Ita, with 4,958 complaints having been followed up, 1,097 still in progress, 41 pending, and 17 conditionally resolved. Analysis of public comments on Instagram found that the app has successfully improved the transparency of public services. This is evident in the availability of adequate access to information, active public participation, and positive assessments regarding service costs and social justice.

However, from an efficiency perspective, challenges remain in terms of ease of use, speed of service delivery, and security. Some residents have complained about the lengthy complaint resolution process, sometimes taking up to a year, and have experienced difficulties using the application. Furthermore, there have been privacy concerns, with the complainant's identity sometimes revealed to the person being reported. Overall, the implementation of e-Government through the Sapa Mbak Ita application has contributed positively to increasing the transparency of public services in Semarang City.

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