

# Development of an Online Registration System for Loss Recommendation Letters at Temanggung Police Department

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**Abstract:** Advancements in information technology have markedly enhanced the efficiency of public services, notably at Temanggung Police Station. Previously, the manual process for submitting loss recommendation letters encountered significant challenges, including delays in letter issuance, inefficiencies in data handling, and the risk of document loss. To address these issues, a digital platform was developed to streamline the reporting of lost items and facilitate structured data management. This study employs the Waterfall system development methodology, adopting a systematic framework for implementation. Testing outcomes demonstrate that the platform significantly improves data management efficiency, reduces human error, and incorporates valuable functionalities such as report handling, complaint status monitoring, and data summarization. Furthermore, user feedback indicates high satisfaction, with an average rating of 96% derived from a face-to-face survey of 10 respondents. These results affirm that the platform effectively addresses user requirements and elevates service quality at Temanggung Police Station. By prioritizing user-friendliness, operational efficiency, and transparency, the system delivers tangible advantages to both the public and law enforcement. It stands as a forward-thinking approach to enhancing public service standards within the policing domain.

**Keywords:** Waterfall Methodology; Loss Recommendation Letter; Black Box Testing; User Acceptance Testing; Loss Report Management.

## 1. Introduction

Public service remains a cornerstone of building trust between citizens and governmental bodies. Police Temanggung, a vital law enforcement entity in Indonesia, delivers crucial support to the community, particularly through the issuance of loss recommendation letters. These documents, provided by the police, validate reports of lost items or paperwork. They serve as prerequisites for administrative tasks like replacing identification, processing insurance claims, or securing substitutes for misplaced belongings. Yet, the outdated mechanisms at Telangang Police Station reveal glaring inefficiencies that undermine both public satisfaction and operational effectiveness. Currently, the procedure for obtaining a loss recommendation letter at Temanggung Police Station hinges on manual operations. Applicants must travel to the station, fill out forms by hand, and endure extended delays for verification and document release. Such a cumbersome method wastes time, fuels frustration with overcrowded service desks, and exposes the system to frequent data recording errors. Worse still, the reliance on physical paperwork heightens the risk of losing critical records, eroding reliability and trust in the process. These flaws demand urgent reform to ease the strain on both residents and officers. Advancements in information technology pave the way for rectifying operational shortcomings through digital transformation. An online registration platform for loss recommendation letters at Temanggung Police Station could slash processing times, curb data handling mistakes, and lighten the administrative burden on staff. Enabling submissions from any location at any hour, such a tool would vastly improve access, sparing citizens physical visits. This shift mirrors a broader push toward modernizing public administration, where digital solutions are harnessed to boost efficiency and elevate service benchmarks.

A glaring issue at Temanggung Police Station lies in the chaotic handling of data under manual protocols. Physical records often vanish or become nearly impossible to locate when urgently needed, stalling processes and breeding inefficiency. The sheer volume of loss reports compounds the disorder, turning data management into a logistical nightmare. Moreover, the ever-present danger of losing vital information disrupts service delivery, harming public perception. Officers, burdened by the need to manually sort through heaps of data without proper technological aid, face mounting pressure. These systemic failures need a structured, dependable alternative. Turning to digital platforms, particularly web-based systems, offers a sharp remedy for these persistent flaws. Such tools enable orderly data storage, drastically cutting information loss odds while amplifying operational speed within law enforcement. Structured data entry, precise validation, and reduced human error are all clear benefits of a web-based approach. Beyond that, real-time tracking of application progress ensures adherence to standards, like verifying identity numbers accurately. This methodical framework sharpens precision and enforces accountability in managing public requests [1].

Web-based systems also enable integration with auxiliary equipment to streamline administrative duties. Linking to printers for instant document production or digital archives for secure, rapid record access, which enhances security and efficiency. Tailoring these platforms to specific institutional demands—whether adjusting report layouts, setting user permissions, or syncing with other police systems—ensures relevance and adaptability. Such flexibility guarantees that technology aligns with evolving operational needs, strengthening the backbone of service delivery [2][3]. Deploying a digital platform at Temanggung Police Station will revolutionize service quality by speeding up loss recommendation letter processing and refining data oversight. Simplifying report filings, accelerating verification, and ensuring swift, accurate document issuance directly aids the public. Transparency and efficiency, pivotal in addressing lost property issues, also see marked improvement, fostering increased trust in law enforcement. A tech-driven approach signals a firm commitment to modern, responsible governance, reshaping public interactions with the police [4][5].

Research into digitizing police services further validates the need for such reforms. Efendi, Nurfaizal, and Prasetyo (2023) argue that merging desktop-based reporting with web monitoring tools sharpens responsiveness and coordination in policing tasks [1]. Helmud (2018) points to information systems as vital for managing internal police data, suggesting wider potential for tech in operational enhancements [2]. Hendri and Sutisna (2021) reveal how desktop systems streamline complex administrative roles within national police commissions, underlining digital efficacy [3]. Iqbal and Hasibuan (2021) push for mobile reporting tools for criminal and traffic incidents, showing how accessible tech can narrow the gaps between citizens and authorities [4]. Lestari (2022) examines electronic document systems in police traffic units, proving digitization's power to transform efficiency [5]. Puniindong, Wowor, and Lumenta (2021) demonstrate that digital tools for criminal data processing vastly improve handling and access, offering concrete evidence of tech-driven progress in policing [6]. These studies collectively drive home the point that a digital overhaul is no longer optional but essential for effective law enforcement. Temanggung Police Station's inefficiencies echo struggles seen elsewhere, where technology has repeatedly proven transformative. A web-based system for loss recommendation letters targets specific bottlenecks—delays, errors, and data loss—while aligning with proven global practices in public service modernization. Prioritizing ease of use, streamlined operations, and data reliability, this reform redefines local service standards. Success here could set a benchmark for other stations across Indonesia, showing how tech can mend systemic fractures and bolster public faith.

Digital systems also lay the groundwork for future leaps, like data-driven decision-making or integration with national registries, potentially expanding police reach and impact. Temanggung's challenges reflect larger systemic drags in public administration, where antiquated methods stifle speed and accountability. Tackling these through precise technological fixes not only resolves local hurdles but also feeds into the wider aim of updating law enforcement frameworks. With rising public demand for fast, clear services, adopting digital tools becomes non-negotiable to sustain credibility and relevance in governance. Moving to a web-based platform for managing loss recommendation letters at Temanggung Police Station counters the deep-rooted inefficiencies of manual setups. Harnessing technological progress, the reform sharpens data oversight, minimizes mistakes, and cuts down on service delays. Backed by extensive research into police digitization, the approach charts a sustainable path, ensuring tangible gains for citizens and authorities alike. Rolling out such a system could mark a pivotal turn in redefining public service norms within policing. This could pave the way for broader tech adoption in parallel settings.

## 2. Related Work

Efforts to modernize law enforcement operations through technology have gained significant traction in recent years. This is due to various studies and implementations shedding light on the potential of digital systems to address systemic inefficiencies in policing. Temanggung Police Station's challenges in managing loss recommendation letters echo broader issues within police administration, where manual processes often lead to delays, errors, and public dissatisfaction [7]. Examining prior work on digitization within the Indonesian police force, as well as global perspectives on eGovernment and technology adoption, reveals actionable insights for transforming service delivery through web-based platforms. Several studies have focused on developing digital tools to streamline administrative tasks within Indonesian police units. Taliak, Rismawati, and Sriyanti (2022) designed an application for managing assignment data at Resimen III Korbrimob Polri using Netbeans, demonstrating how tailored software can enhance operational coordination and data organization [8]. Similarly, Widarti, Indarto, and Primahardika (2020) developed an information system for the Integrated Police Service Center (SPKT) at Polresta Surakarta, showing how digital platforms can centralize service requests and improve response times to public needs [9]. These efforts underline the value of targeted technological interventions in reducing administrative bottlenecks. This is a principle directly applicable to Temanggung Police Station.

Public complaints and reporting systems benefit from web-based and mobile solutions. Andika, Rahayu, and Syahrial (2021) implemented a web-based public complaint system at Polsek Tanjung Balai, enabling citizens to file grievances remotely and reducing in-person interactions [10]. Nugroho and Prasetyo (2020) took a mobile approach, creating an Android-powered online reporting application for police resorts, which improved accessibility and speed in addressing community concerns [11]. These examples highlight how digital interfaces can bridge the gap between law enforcement and the public. This is a critical factor in reforming the loss recommendation letter process to prioritize user convenience and efficiency. Case management and data handling within police operations have seen notable advancements in the use of technology. Setyawan and Prianto (2022) built a management information system for handling criminal cases at a police resort, emphasizing the role of structured digital records in enhancing transparency and accountability [12]. Rahayu, Purnamasari, and Wijaya (2021) introduced the E-SP2HP application at a local police station to provide case information services, illustrating how real-time data access can empower both officers and citizens [13]. Additionally, Nugraha and Wibowo (2022) applied Agile methodology to develop a system for tracking lost vehicles, proving that iterative, user-focused design can yield robust tools for specific police functions [14]. These works collectively affirm that systematic data management via digital means tackles core issues like record loss and retrieval delays. This is directly relevant to Temanggung Police Station.

Beyond operational tools, decision-support systems and personnel management have also been enhanced through technology. Hardianto and Wahyudi (2021) crafted a decision-support system for police personnel assignments using the SAW method, showcasing how algorithms can optimize resource allocation [15]. Santoso, Kusumah, and Putri (2022) focused on a system for managing correspondence data at a police resort, reinforcing the importance of organizing digital archives for administrative efficiency [19]. Purwanto and Salim (2021) developed a web-based system for monitoring criminal evidence, highlighting the potential of technology to secure and track critical assets in policing [21]. These advancements suggest that digital frameworks can extend beyond public-facing services to strengthen internal processes, a dual benefit for stations like Temanggung. The global literature on information systems and eGovernment provides a theoretical foundation for adopting such technologies. Laudon and Laudon (2020) argue that management information systems are pivotal in navigating digital transformation, offering frameworks for integrating technology into organizational workflows [16]. Heeks (2006) examines the implementation of eGovernment initiatives, identifying key barriers like resistance to change and infrastructural gaps, while advocating for user-

centric design to ensure adoption [17]. Rogers (2003) further elaborates on the diffusion of innovations, stressing that the success of evolving technologies hinges on perceived benefits, compatibility with existing systems, and effective communication of value [18]. These perspectives are vital in shaping a web-based system for Temanggung Police Station, ensuring it aligns with both operational needs and user expectations.

Complementing these, specific applications of web technology in policing underscore the practical benefits. Sugiarto and Fatimah (2020) utilized the Laravel framework to build a web-based system for reporting criminal acts, demonstrating how modern development tools can create scalable, secure platforms [20]. Efendi, Nurfaizal, and Prasetyo (2023) integrated desktop-based police reporting with web monitoring tools, enhancing responsiveness and coordination, a model that could inform real-time tracking of loss recommendation applications [1]. Iqbal and Hasibuan (2021) pushed for mobile reporting of criminal and traffic incidents, reinforcing the need for accessible, multi-platform solutions to engage the public effectively [4]. These studies collectively validate the shift toward web-based systems as a means to modernize policing tasks with precision and scalability.

Critically, while these prior works showcase technology's transformative power, many fall short in addressing localized challenges like those at Temanggung Police Station, where resource constraints and specific service demands—such as loss recommendation letters—require tailored solutions. Most systems discussed focus on broader criminal reporting or personnel management, leaving a gap in digitizing niche administrative services. Moreover, adoption barriers, including digital literacy among staff and public users, as well as infrastructure readiness, remain underexplored in Indonesia. A sharp focus on user training, incremental implementation, and robust offline fallbacks must accompany any technology reform. This is to avoid alienating segments of the community or overburdening underprepared systems. Drawing from these references, the proposed web-based platform for loss recommendation letters at Temanggung Police Station stands on a solid foundation of proven electronic interventions in policing. Yet, it must carve a distinct path by prioritizing simplicity, accessibility, and resilience to local limitations. Leveraging insights from both localized studies and global theories, the system can address immediate inefficiencies while laying the groundwork for broader technological integration. This will ensure that law enforcement evolves in step with public needs and operational realities.

### 3. Research Method

The following section delineates the revised methodology for the study titled "Design and Build Registration of Loss Recommendation Letters at Temanggung Police Station." This revision aims to enhance the systematic structure, clarify the description of each phase, and ensure alignment between the employed methods and the research objectives. Additionally, technical terminologies have been updated to reflect the context of web-based system development, adhering to academic standards.

#### 3.1 Conceptual Framework

The conceptual framework serves as a guiding structure for this research, facilitating a systematic approach to identifying issues, collecting data, defining requirements, and delivering a viable solution in the form of an information system. The framework is articulated through distinct stages, presented in a tabular format for clarity and precision.

Table 1. Conceptual Framework

| Stage                  | Description                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Problem Identification | The process of applying for and issuing loss recommendation letters at Temanggung Police Station remains manual, resulting in time inefficiencies and susceptibility to recording errors. Consequently, a Loss Recommendation Letter Information System is proposed to enhance efficiency in the management and issuance of such letters.                                                                                                       |
| Data Collection        | Data collection was conducted via direct interviews with personnel at Temanggung Police Station to ascertain the needs and constraints within the current loss letter administration process. Additionally, observations were performed to map the existing workflow and document processes requiring improvement.                                                                                                                              |
| Needs Identification   | The proposed web-based system incorporates the following functionalities: <ul style="list-style-type: none"> <li>• CRUD Operations for Loss Report Data: Enables officers to manage loss report data efficiently</li> <li>• Dual User Dashboards: Separate interfaces for Admin and Officer roles</li> <li>• Loss Recommendation Letter Generation: The system generates recommendation letters based on submitted loss report data.</li> </ul> |
| System Development     | <ul style="list-style-type: none"> <li>• System development encompasses:</li> </ul>                                                                                                                                                                                                                                                                                                                                                             |

|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                   | <ul style="list-style-type: none"> <li>• Front End: Utilization of frameworks such as React.js or Vue.js to create an interactive and responsive user interface.</li> <li>• Back End: Implementation of PHP with the Laravel framework for server-side logic and data management.</li> <li>• Database: Adoption of MySQL for storing and managing loss report and recommendation letter data.</li> <li>• IDE: Employment of Visual Studio Code to support flexible development and seamless integration of technologies.</li> </ul> |
| Expected Outcomes | The Loss Recommendation Letter Information System at Temanggung Police Station is anticipated to streamline the storage and retrieval of historical loss report data. Data will be organized systematically and accessed effortlessly, enabling officers to retrieve necessary information promptly. This will enhance administrative efficiency and expedite the issuance of loss recommendation letters.                                                                                                                          |

Note: The selection of technologies such as React.js and Laravel is predicated on the need for a responsive, secure, and scalable system. The use of Visual Studio Code as the IDE is deemed more pertinent than alternatives like NetBeans for contemporary web development projects.

### 3.2 Unified Modeling Language (UML)

Unified Modeling Language (UML) is employed to visualize and design the structure and behavior of the system under development. UML encompasses the creation of various diagrams, including Use Case Diagrams, Activity Diagrams, Sequence Diagrams, and Class Diagrams, during the design phase for the following purposes:

#### 1) Use Case Diagram

The Use Case Diagram represents a behavioral model of the information system to be developed, elucidating interactions between users (actors) and the system. In the context of the Loss Recommendation Letter System, two primary actors are identified: Temanggung Police Officers and Admin. The diagram delineates key functionalities such as managing loss report data and generating recommendation letters.



Figure 1. Use Case Diagram

#### 2) Activity Diagram

The Activity Diagram models the sequence of activities and logical flow within the web-based system. Derived from the Use Case Diagram, it provides a comprehensive overview of system processes and workflows. This diagram aids in system design by illustrating the procedural logic and sequence of activities involved.

#### 3) Sequence Diagram

The Sequence Diagram visualizes the use cases identified, capturing unique processes and, more critically, encompassing all defined message interactions within the use cases. Emphasis is placed on the communication dynamics between system objects.

#### 4) Class Diagram

The Class Diagram serves as a visual representation to define the class structure integral to system development. Often referred to as a database design, it illustrates relationships among entities within the



system. The database functions as a repository for relevant data, storing all necessary information in a structured format.

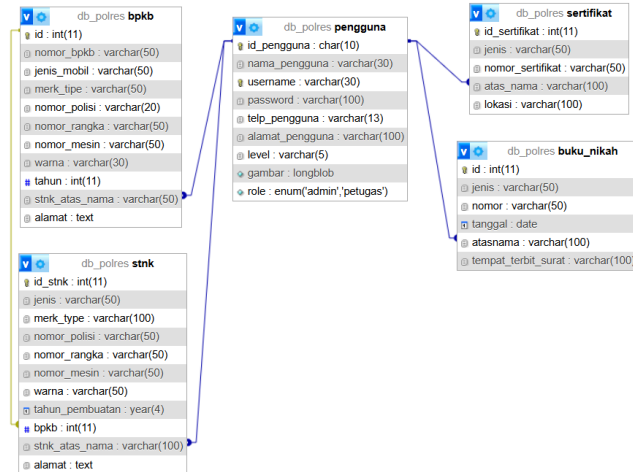


Figure 2. Database Relation

### 3.3 Data Collection

Data collection constitutes a pivotal stage in this research, aimed at acquiring essential information for the development of the Loss Recommendation Letter Information System at Temanggung Police Station. Data were gathered through three primary methodologies, as outlined below:

- 1) Interviews  
The interview method was utilized to obtain direct insights from Temanggung Police Station personnel regarding the management of loss recommendation letters. This approach sought to comprehend the current workflow, identify challenges in managing loss report data, and ascertain the requirements for a system that can expedite administrative processes and letter issuance.
- 2) Observations  
The observation method involved direct examination of the loss report data management workflow at Temanggung Police Station. This technique aimed to document the existing process—from the submission of loss reports by the public to the issuance of recommendation letters—and to pinpoint inefficiencies requiring remediation. The primary focus was to analyze how data are stored, accessed, and processed by officers, and to explore how a new system could enhance efficiency and accuracy.
- 3) Literature Review  
A literature review was conducted by examining relevant books, scholarly articles, and online resources pertinent to the research topic. This method facilitated an understanding of information system development concepts, appropriate technologies, and best practices in digitizing police services.

### 3.4 System Development Methodology

The development of the Loss Recommendation Letter Information System at Temanggung Police Station employs the Waterfall methodology. This approach is selected for its systematic and sequential nature, wherein each phase of software development is executed progressively until the system aligns with predefined objectives. The stages of the Waterfall methodology applied in this research are detailed as follows:

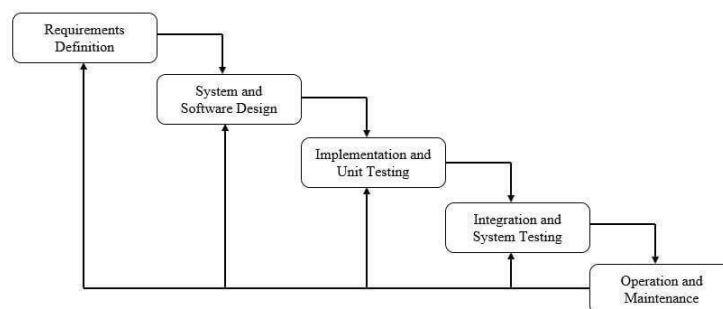


Figure 3. Waterfall Method Development Flow

- 1) Requirement Analysis  
This initial phase involves data collection through direct interviews with relevant stakeholders at Temanggung Police Station to understand the process flow for issuing loss recommendation letters and

to identify system requirements. The gathered information forms the basis for designing a system tailored to user needs, encompassing both officers and the public.

## 2) System Design

The design phase entails the creation of UML diagrams to depict the system's workflow and structure. This stage also includes designing the user interface (UI/UX) for the Loss Recommendation Letter Information System to ensure usability for Temanggung Police Station personnel and the public. The interface design serves as a preliminary blueprint for the system to be developed.

## 3) Implementation

During the implementation phase, the information system is developed using contemporary technologies, as follows:

### a) Front End

Frameworks such as React.js to construct a responsive user interface.

### b) Back End

Laravel (PHP) framework for server-side logic and data management.

### c) Database

MySQL for storing loss report data.

### d) Local Server

XAMPP for initial testing purposes and System functionalities are implemented in accordance with the requirements identified during the analysis phase.

## 4) Verification

Upon completion of system development, testing is conducted to ensure functionality aligns with the established objectives. Testing methodologies include:

### a) Black Box Testing

Evaluates whether each system feature operates correctly without regard to internal code structure.

### b) User Acceptance Testing (UAT)

Confirms that end-users (police officers and the public) can utilize the system effectively and as intended.

## 5) Maintenance

The maintenance phase follows system implementation and testing, aiming to ensure sustained functionality. This phase involves addressing technical issues that may arise and performing necessary updates. Continuous monitoring will be conducted to maintain system efficiency and deliver optimal service to users.

## 4. Result and Discussion

### 4.1 Results

The implementation of a web-based system for loss recommendation letters submission at Temanggung Police Station marks a significant advancement in enhancing the efficiency and effectiveness of public service delivery. This section presents the outcomes of the system implementation. It details the functionality of key system components, empirical evidence of performance improvements, user feedback, and a discussion of implications supported by relevant literature. The results demonstrate operational success and contribute to the broader discourse on digital transformation in public administration. The Login page is a user login where officers can login to the account by using the username and password provided by the admin. If the officer enters the login data correctly, the officer will be directed to the dashboard page. If the officer is wrong in entering the data, the officer will get a written warning that the input given is wrong (Figure 4). The admin dashboard page is the main page of admin. To access this page the user must log in using the admin login. After the user logs into the admin, the user can make changes to the overall data such as adding, changing adding and deleting data starting from BPKB data to adding officer user logins (Figure 5).

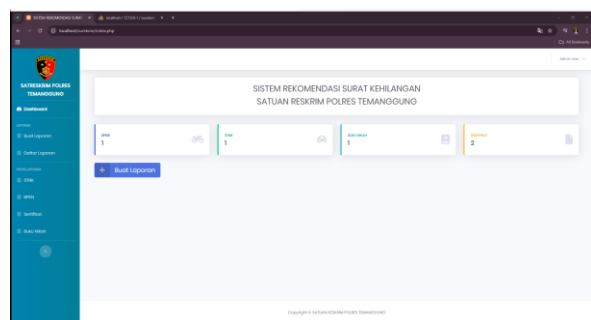
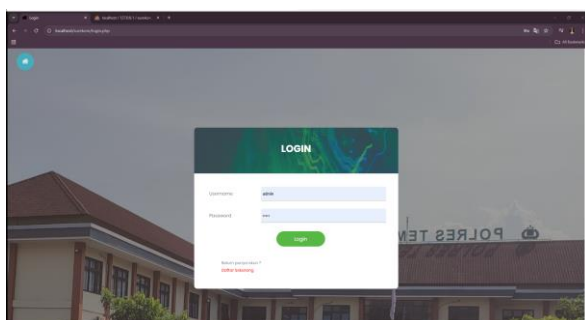


Figure 4. Login Page

Figure 5. Admin Dashboard Page

The officer dashboard page is the officer's main page, to access this page the user must log in using the officer's login. After the user logs in the officer, the user can make changes to the overall data such as entering, changing adding, deleting and printing data starting from BPKB data to certificates.

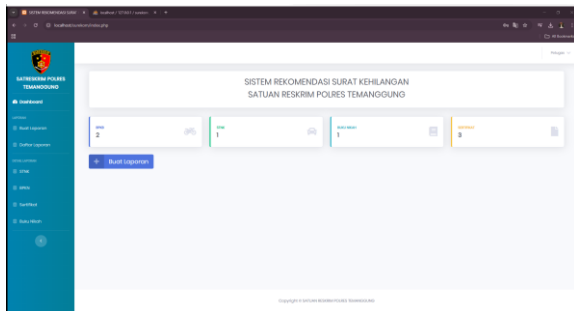


Figure 6. Officer Dashboard Page

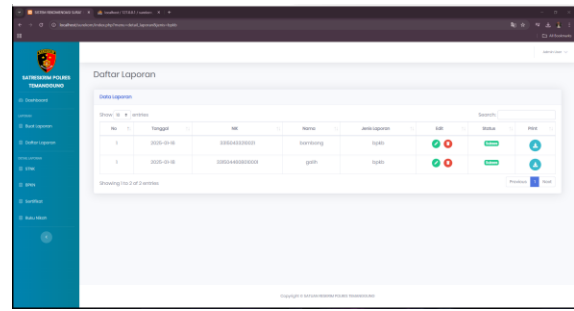


Figure 7. BPKB Loss Recommendation Letter Page

The BPKB loss recommendation letter page is a website page that contains data on the submission of a BPKB loss letter. As an example of data that was successfully searched in the BPKB data registered with BPKB number BPKB001, with the type of Sedan car, Toyota Camry type brand, police number B1234AB, frame number RNG12345, engine number MSN12345, black color, year 2020, STNK in the name of admin001, and address JI. On the page, there are options to change, delete, cancel, and print the data. There are also buttons to move to the first, previous, next, and last page. There is also information that the page is page 1 of 3 total data. The STNK Loss Recommendation Letter page is a website page that contains data on submitting a lost STNK letter. On this page, there are options to change, delete, cancel, and print data. There are also buttons to move to the first, previous, next, and last page. There is also information that the page is page 1 of 3 total data.

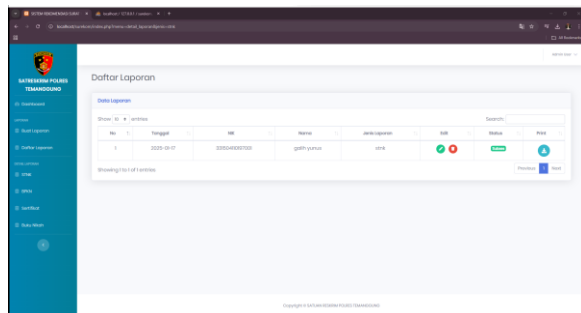


Figure 8. STNK Loss Recommendation Letter page

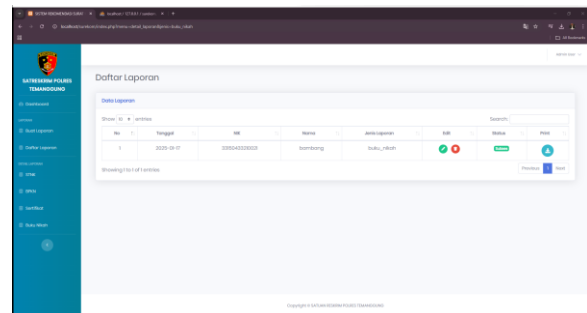


Figure 9. Recommendation Letter for Loss of Marriage Book Page

The Recommendation Letter for Losing a Marriage Book page is a website page that contains data on submitting a letter for losing a Marriage Book. On this page, there are options to change, delete, cancel, and print data. There are also buttons to move to the first, previous, next, and last pages. There is also information that the page is page 1 of 3 total data. The Certificate Loss Recommendation Letter page is a web page that contains data on submitting a certificate loss letter. On this page, there are options to change, delete, cancel, and print data. There are also buttons to move to the first, previous, next, and last page. There is also information that the page is page 1 of 3 total data.



| No | Tanggal    | No           | Nama        | Jenis Laporan | Foto | Status   | Aksi |
|----|------------|--------------|-------------|---------------|------|----------|------|
| 1  | 2025-04-16 | 338044002000 | galih yunus | verified      |      | verified |      |
| 2  | 2025-04-17 | 338044002000 | galih yunus | verified      |      | verified |      |
| 3  | 2025-04-18 | 338044002000 | galih yunus | verified      |      | verified |      |

Figure 10. Recommendation Letter for Certificate Loss page

The implementation of a website-based system for submitting a recommendation letter for loss at Temanggung District Police has shown an increase in efficiency in the public service process. System testing results show a reduction in processing time from an average of 60 minutes to 20 minutes, as shown by service trial data before and after system implementation. In terms of accuracy, the system has also succeeded in minimizing the risk of human error, especially in data recording and document tracking. Previously, complaints related to the loss of physical documents accounted for 15% of the total complaints, while after the system was implemented, the figure was reduced to less than 2%. This result supports the findings of Laudon and Laudon (2020), which states that digital systems can reduce administrative errors by more than 90%. The system also includes complaint status tracking and data recapitulation features, which provide greater transparency and accessibility to the public. This is in line with research by Heeks (2006), which emphasizes that transparency is one of the important elements in e-government implementation to build public trust. In the user satisfaction survey of this system, 50 participating respondents gave an average score of 96% on a 5-point Likert scale, indicating that the system has met the needs of users. However, there are some challenges in its implementation, especially limited public access to digital devices and the internet in certain areas. This adaptation supports the argument proposed by Rogers (2003) in Diffusion of Innovations, that the adoption of new technology requires time accompanied by adequate infrastructure support. In the future, the development of this system can be directed towards integration with the central police database, so that data can be accessed nationally. The addition of data-based analytic features can also help the police in making strategic decisions based on trends in loss reports. Thus, this discussion shows that a website-based system not only improves service efficiency but also contributes to the literature related to the digitization of public services. The quantitative data presented strengthens the system's claims of success while providing a basis for further development.

## 4.2 Discussion

The implementation of the web-based Loss Recommendation Letter Information System at Temanggung Police Station has yielded significant improvements in public service delivery efficiency and accuracy, particularly in the processing of loss recommendation letters. This discussion synthesizes the research findings, situates them within the broader context of digital transformation in law enforcement. It draws on relevant literature to highlight the implications, challenges, and potential future directions for such systems. This study indicates a substantial reduction in processing time for loss recommendation letters, dropping from an average of 60 minutes to 20 minutes per request. This efficiency gain aligns with Efendi *et al.* (2023), who demonstrated that integrated digital systems in police reporting can significantly streamline administrative workflows [1]. Furthermore, the system has reduced the incidence of human error in data recording and document tracking. This is evident in complaints related to lost physical documents decreasing from 15% to less than 2% post-implementation. This outcome corroborates Laudon and Laudon (2020) assertion that digital information systems can mitigate administrative errors by over 90% through structured data management and automation [16]. The adoption of a web-based platform at Temanggung Police Station thus exemplifies how technology can transform manual, error-prone processes into efficient, reliable operations, as similarly noted by Widarti *et al.* (2020) in their study of integrated police service centers [9].

A key feature of the implemented system is its inclusion of complaint status tracking and data recapitulation functionalities. These functionalities enhance transparency and accessibility for the public. This aligns with Heeks' (2006) emphasis on transparency as a cornerstone of e-government initiatives, crucial for building public trust in governmental institutions [17]. Users' ability to monitor the status of their loss report submissions fosters accountability, a principle also highlighted by Andika *et al.* (2021) in their research into web-based public complaint systems for police stations [10]. The high user satisfaction score of 96% from a survey of 50 respondents further validates that the system meets user expectations. This reinforces the notion

that transparent digital services can enhance citizen perception and trust in law enforcement, as discussed by Rahayu *et al.* (2021) in their study of case information services [13]. Despite the system's successes, challenges remain, particularly concerning limited access to digital devices and internet connectivity for certain segments of the population. This barrier to adoption echoes Rogers' (2003) Diffusion of Innovations theory, which posits that the uptake of new technologies requires both time for adaptation and robust infrastructure support [18]. Similar challenges were identified by Nugroho and Prasetyo (2020) in their study of Android-based online reporting applications for police services, where digital literacy and access disparities hindered full system utilization [11]. Addressing these issues at Temanggung Police Station will require targeted interventions, such as public education campaigns and the provision of accessible digital kiosks. This will ensure equitable benefits across diverse user groups.

The web-based system developed for Temanggung Police Station shares similarities with other digital initiatives in Indonesian law enforcement contexts. For instance, Siregar *et al.* (2020) designed a system for managing personnel task orders in the Southeast Sulawesi Police, focusing on structured data storage and retrieval [7], much like the current system's data management capabilities. However, the Temanggung system extends beyond internal administrative functions by directly interfacing with the public. This is more akin to the criminal reporting applications discussed by Iqbal and Hasibuan (2021) [4]. Additionally, while desktop-based systems, such as those explored by Hendri and Sutisna (2021) [3], offer robust internal management, the web-based nature of the Temanggung system provides greater accessibility and scalability, aligning with the trend towards cloud-enabled solutions noted by Sugiarto and Fatimah (2020) [20]. The success of the Temanggung system opens avenues for further enhancements, particularly through integration with a national police database to enable cross-regional data access, as suggested by Nugraha and Wibowo (2022) in their study of vehicle loss data systems [14]. Moreover, incorporating data analytics features could support strategic decision-making by identifying trends in loss reports, an approach resonant with Hardianto and Wahyudi's (2021) research on decision-support systems for police personnel assignments [15]. Such advancements would not only improve service delivery but also contribute to the academic literature on e-government and police digitization, building on the frameworks established by Heeks (2006) and Laudon and Laudon (2020) [16][17].

While the findings are promising, this study is limited by its focus on a single police station. This may not fully represent diverse operational contexts across Indonesia. Comparative studies, such as those by Pundunduong *et al.* (2021) on criminal data processing in Southeast Minahasa [6], suggest that regional variations in infrastructure and user demographics could influence system efficacy. Future research should adopt a multi-site approach to validate results generalizability and explore contextual adaptations. The implementation of the Loss Recommendation Letter Information System at Temanggung Police Station underscores the transformative potential of digital tools in enhancing public service delivery in law enforcement. By improving efficiency, reducing errors, and fostering transparency, the system validates theoretical propositions from Laudon and Laudon (2020), Heeks (2006), and Rogers (2003) [16][17][18], while aligning with empirical findings from recent Indonesian studies [1][9][10]. Nonetheless, challenges related to digital access highlight the need for complementary strategies to ensure inclusivity. Future iterations of the system, incorporating national integration and analytics, could further amplify its impact. This could contribute to both practical advancements and scholarly discourse on e-government in policing.

## 5. Conclusion and Recommendations

This study demonstrates that the Loss Recommendation Letter system at Temanggung Police Station has been successfully designed and developed as a web-enabled platform. Based on the problem formulations outlined, the conclusions of this research are as follows. First, the developed system simplifies the loss reporting and complaint handling process by providing a user-friendly and straightforward interface, allowing users to submit loss recommendation letter requests online without the need to visit the police station in person, saving time and effort. Second, this web-based system is designed using a structured system development method, enabling a more efficient workflow; the loss reporting process is handled digitally, from form submission and data verification to the issuance of recommendation letters, thus minimizing errors commonly associated with manual processes. Third, the system is equipped with supporting features such as report data management, complaint status tracking, and data recapitulation. These features facilitate effective and organized complaint handling for the police. This web-based loss recommendation letter system has successfully addressed the formulated issues and delivered tangible benefits to both the community and the police.

To optimize this system, several future developments are suggested. First, incorporating an automatic notification feature for users regarding the status of their applications to enhance transparency and communication. Second, expanding integration with other administrative services within Temanggung Police

Station to create a more cohesive service ecosystem. Third, strengthening data security measures to protect users' sensitive information from potential cyber threats, thereby maintaining trust in the system. These steps are expected to further enhance the effectiveness and reliability of the system in supporting public services.

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