

Original Research

SOA-Based Digitalisation of the Jakarta Metropolitan Police's ICT Services for the Integrity of the Indonesian National Police's Internal Services

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ABSTRACT

Internal Information and Communication Technology (ICT) services within the Jakarta Metropolitan Police have traditionally relied on manual, fragmented processes, resulting in data duplication, delayed reporting, and weak accountability in IT asset management. This study aims to digitize these internal technical services and enhance organizational integrity by developing a centralized web-based application using a Service-Oriented Architecture (SOA). Employing a descriptive qualitative approach, data were gathered through observation, interviews, and documentation to map and restructure existing business workflows. The resulting system, Lantik PMJ, was built using CodeIgniter 4, MySQL, and Bootstrap 4 to integrate modular services for IT equipment loans, network installations, device repairs, and comprehensive asset lifecycle tracking. Black-box testing was conducted to validate system functionality across tiered, role-based access levels. The results demonstrate that the SOA-based application successfully replaces informal communication channels with a structured workflow, providing real-time service tracking, automated PDF reporting, and proactive return-delay monitoring for IT assets. All tested functional scenarios passed successfully, confirming the system's reliability and readiness for operational deployment. Ultimately, this digital transformation significantly improves operational efficiency, transparency, and internal accountability, serving as a foundational model for the broader modernization of the Indonesian National Police's internal support infrastructure.

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1. INTRODUCTION

The Indonesian National Police's internal service system plays a vital role in enhancing the integrity, effectiveness and operational efficiency of the organisation, particularly within the Information and Communication Technology Division of the Metro Jaya Regional Police. This ICT service system encompasses the processes of service requests, request validation, service delivery, and the lifecycle management of IT equipment, as well as structured and documented reporting of work outcomes. The ICT services themselves cover the loan of IT equipment, network and device installation, and IT equipment repairs. This system ensures that all stages are clearly recorded and approved in a step-by-step, tiered manner, producing a work performance report or an IT equipment lifecycle history that is digitally exported in PDF format for the purposes of internal/external audits by the Indonesian National Police or for the archives of each Regional Jurisdictional Unit within the Jakarta Metropolitan Police.

The effectiveness of the service, measured through Key Performance Indicators (KPIs), includes an assessment of response speed, service accuracy and internal user satisfaction with the results of the services carried out within the system. The implementation of a standardised ICT service system is capable of enhancing accountability, streamlining workflows and minimising administrative errors. However, during the ongoing process, challenges have been encountered, such as manual ICT service processes leading to data duplication and the absence of an integrated digital monitoring system [1].

The ICT Division of the Metro Jaya Regional Police is the unit responsible for carrying out management, guidance and development functions relating to Information and Communication Technology (ICT) systems, as well as overseeing ICT within the Indonesian National Police [2]. It is responsible for the management and technical support of technology in the form of services such as the installation, loan and repair of IT equipment. Observations reveal that processes are still carried out manually via official memos or WhatsApp messages [3], ranging from service request submissions and validation to reporting on service outcomes and the lifecycle history of IT equipment. The absence of IT Service Management standards has resulted in a low level of service maturity and weak service performance monitoring. An integrated service system can facilitate digital transformation within the ICT Division of the Metro Jaya Regional Police in the service sector [4], based on accurate, real-time and documented data.

The digitisation of the ICT service system provides a solution for enhancing the integrity and efficiency of technical service processes, covering the entire workflow from requests for the loan of IT equipment, network or IT device installation, through to IT device repairs carried out online and verified by the ICT Administrator in the request report, which is exported in PDF format. The digitisation of the ICT service system also aids in managing the lifecycle data of IT equipment owned by the PMJ ICT Division, from procurement, usage, and maintenance through to the decommissioning of equipment that no longer meets service criteria. Several other studies have shown that the implementation of internal service digitisation based on a modular architecture improves the effectiveness and efficiency of data management [5]. The ICT service system applies the concept of Service-Oriented Architecture (SOA) to every function [6], from service requests and validation of service applications through to reporting of service outcomes. These are managed as independent services that are mutually integrated within a single centralised architecture aligned with service KPIs, with the aim of supporting efficient service processes and enhancing the integrity of services designed to be utilised without the need for major modifications [7].

Previous research on the digitalisation of Indonesian National Police services has generally focused on public services, such as the digitalisation of SKCK services at the Pasaman District Police Station [8]. However, the implementation of SOA (Service-Oriented Architecture)-based ICT service digitalisation within technical service systems for the installation, loan and repair of IT equipment is a topic that has rarely been studied. Consequently, this study differs significantly in that it focuses on internal rather than public services, specifically the development and implementation of the digitalisation of the Jakarta Metropolitan Police's IT Service System, designed using SOA to integrate all service data, service statuses and service reports in PDF format. Consequently, the objective of this research is to implement the digitalisation of the Jakarta Metropolitan Police's ICT service system using a Service-Oriented Architecture (SOA) design to enhance service integrity within the Jakarta Metropolitan Police environment [6, 9].

2. RESEARCH METHODS

2.1. Basic Research Framework

The research stages carried out in this study follow the flowchart presented in Figure 1. The process begins with the problem identification stage, in which the existing ICT services and IT device lifecycle inventory were found to be managed manually through official letters and WhatsApp, resulting in inefficient tracking, fragmented records, and delayed reporting. This condition was then translated into the system requirements analysis stage, which defined the main functional needs of the application, namely a digital inventory of ICT services, a digital IT device lifecycle inventory, real-time service tracking, and the ability to export reports in digital or PDF format.

Based on the identified requirements, the system was designed using a Service-Oriented Architecture (SOA) approach. This design stage separates the ICT services module from the IT device lifecycle module, builds the

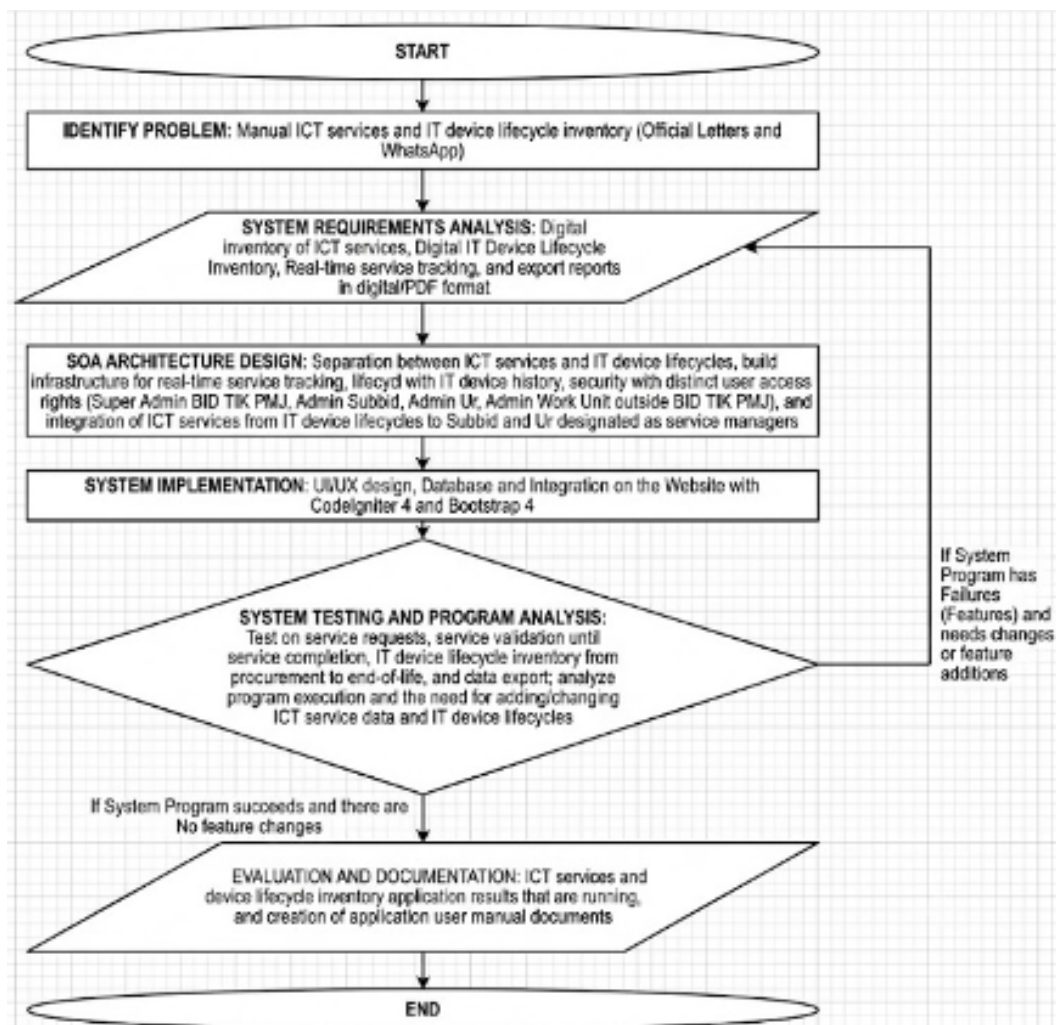


Figure 1. Research Flowchart of the ICT Services and IT Device Lifecycle Inventory System Development Based on the Service-Oriented Architecture (SOA) Approach

infrastructure for real-time service tracking and device lifecycle history, and implements security through distinct user access rights, consisting of the Super Admin of BID TIK PMJ, Admin Subbid, Admin Ur, and Admin Work Unit outside BID TIK PMJ. The design also integrates ICT services from the IT device lifecycle to the Subbid and Ur units designated as service managers. The system implementation stage was subsequently carried out through UI/UX design, database construction, and web-based integration using the CodeIgniter 4 and Bootstrap 4 frameworks.

Following implementation, the system testing and program analysis stage was conducted to verify the service request process, service validation until service completion, the IT device lifecycle inventory from procurement to end-of-life, and the data export function. The testing results were analyzed to determine whether the program executed successfully. If failures or the need for feature changes and additions were detected, the process returned to the system requirements analysis stage, reflecting the iterative nature of the development model. Conversely, if the system program succeeded without requiring feature changes, the flow proceeded to the evaluation and documentation stage, which produced a fully running ICT services and device lifecycle inventory application together with the application user manual documents, before the research process was concluded [10–14].

2.2. Research Stages

a. Observation:

In this study, observation was carried out to obtain data on ICT services to be examined directly through observation of ICT service processes and the lifecycle of IT equipment arising from service requests such as the installation of networks, two-way radios and CCTV, the loan of IT equipment such as sound systems, videotrons and two-way radios; the repair of two-way radios, CCTV and networks; and the recording of the IT

equipment lifecycle from the procurement of new devices, through their use and repair, to the discontinuation of use due to technical issues with the IT equipment. This data was obtained from ICT service request letters or official memos regarding the inventory of IT equipment held by the ICT Division of the Metro Jaya Regional Police, which was used as the basis for the implementation of a digital service system [15–17].

b. Interviews:

Dialogues to gather data on service processes taking place within the Metro Jaya Regional Police ICT Division, as well as data on the IT equipment lifecycle, with personnel from the Metro Jaya Regional Police ICT Division—including both non-commissioned officers and commissioned officers serving in relevant sub-divisions or departments, particularly the Information Technology Sub-division—and civil servants assisting in processing ICT services and managing the IT equipment lifecycle.

c. Documentation:

Data collection in the form of official correspondence relating to service requests, photographs of ongoing ICT service activities, and archives of data on equipment owned by the Jakarta Metropolitan Police ICT Division.

2.3. Data Analysis Techniques

a. Descriptive Statistical Analysis:

Analysis aimed at processing qualitative data obtained through observation, interviews and documentation, as well as identifying problems in the IT service process and the life cycle of IT equipment owned by the Metro Jaya Regional Police IT Division to date [18–20].

b. Coding Analysis:

Qualitative data, coded in accordance with the objective set out in the title—to enhance service integrity—was used to analyse the results of interviews and observations.

c. Thematic Analysis:

This method was used to identify patterns and key themes from the coding results regarding the services of the Metro Jaya Regional Police's ICT Division, which include improved integration between ICT service systems and the IT equipment lifecycle, levels of service efficiency and transparency, and increased satisfaction with service usage among personnel of the Metro Jaya Regional Police's ICT Division as well as personnel from other units within the Metro Jaya Regional Police.

3. RESULTS AND DISCUSSION

3.1. Background to the Case Study

The Metro Jaya Regional Police ICT Division is responsible for Information and Communication Technology services, which are centralised under the ICT Division of the National Police Headquarters, but operationally fall under the jurisdiction of the Metro Jaya Regional Police. The PMJ ICT Division provides a wide range of services, including the installation, repair and loan of IT equipment such as networks, sound systems, CCTV, videotrons and two-way radios owned by the PMJ ICT Division. These services are still carried out manually via WhatsApp messages, mobile phone calls and physical official letters, resulting in technical challenges such as a lack of clarity regarding the services requested, as well as uncertainty regarding the location, time and details of the requested services, which are not clearly documented.

3.2. Current Business Process

Figure 2 shows the current business flowchart, in which the ICT service process is carried out manually by telephone between personnel from units within the Metro Jaya Regional Police who submit requests for ICT services and personnel from the Metro Jaya Regional Police ICT Division, who act as the service providers and check the readiness of IT equipment based on its suitability, whilst also managing the facilities and infrastructure for the installation, repairs and the loan of equipment owned by the Metro Jaya Regional Police ICT Division. The results of these recurring ICT services are communicated back to the personnel of the Metro Jaya Regional Police units who submitted the ICT service requests.

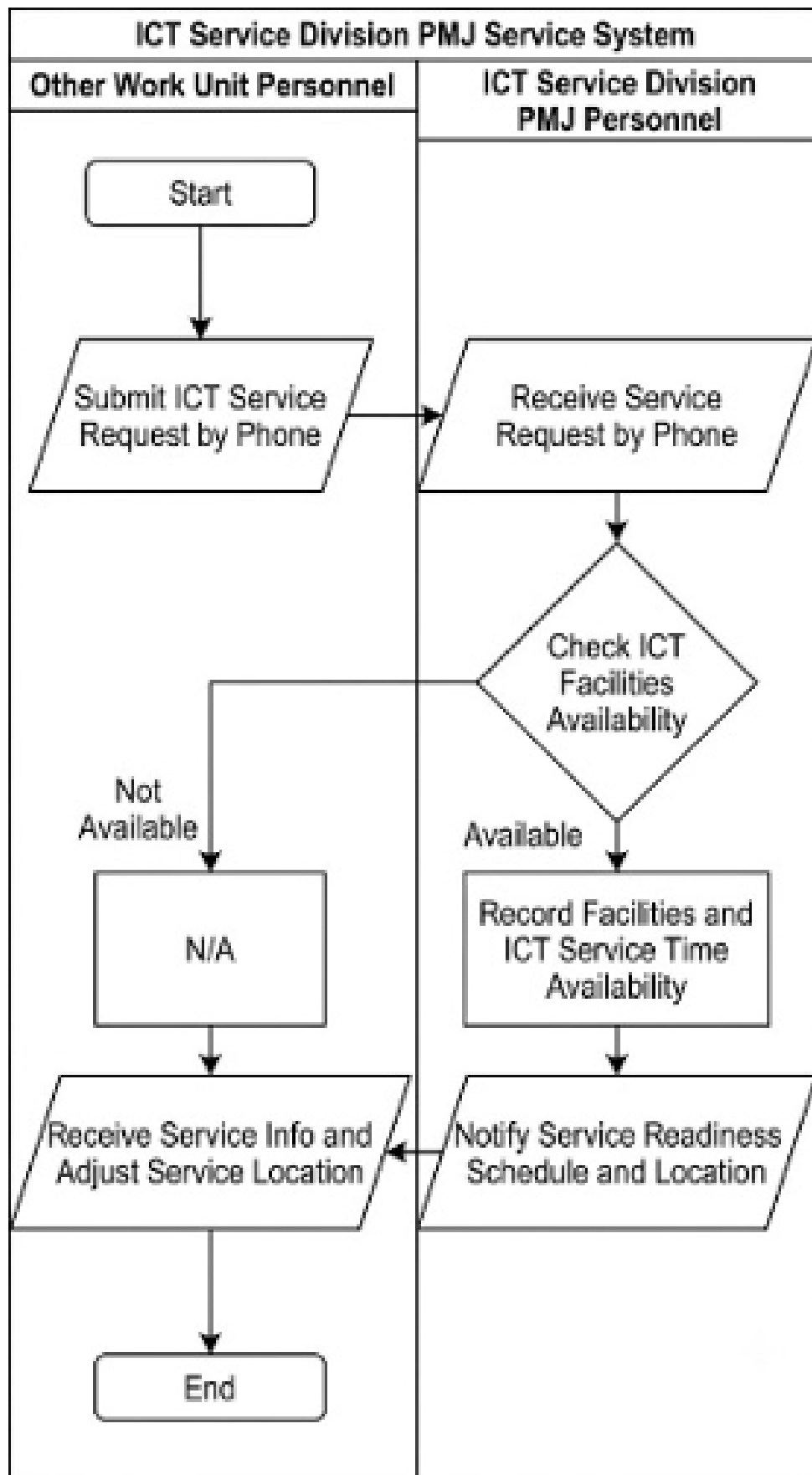


Figure 2. Flowchart of the current business process

3.3. Proposed Business Process

Figure 3 shows a flowchart of the business process submitted digitally, involving four user access classifications (Unit Personnel within the Metro Jaya Regional Police, Super Admin of the Metro Jaya Regional Police ICT Division, Sub-Division ICT Admin and Unit ICT Admin). This process is initiated by a unit personnel from the Metro Jaya Regional Police who submits a service request by completing the service request form. This is then responded to by the Unit IT Administrator, who receives the forwarded service message and checks the IT equipment asset data based on availability and suitability to confirm whether the service can be provided or not. If the request is not approved, the Unit Admin sends a 'Pending' status regarding the requested service to the user; if approved, it is followed up with an 'On Progress' status for the Unit Staff, and updates are provided in real time, accompanied by documentation and status updates sent to the Unit Staff. Super Admins and Sub-division Admins have the right to monitor the progress of services carried out by Unit personnel through real-time service updates provided by the Unit Admin. Users from the line organisation units will also monitor the service and can export data for reports on services received from the Metro Jaya Regional Police's ICT Division.

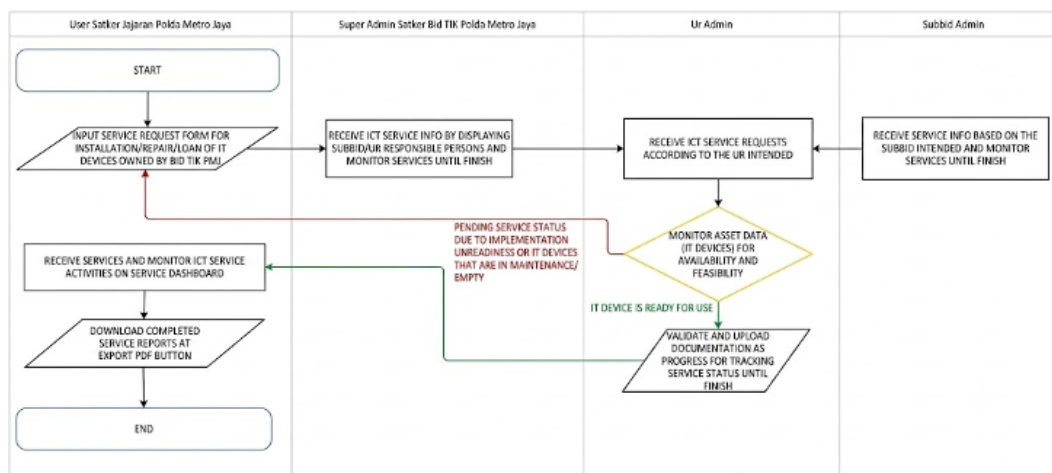


Figure 3. Flowchart of the proposed business process

3.4. Use Case Diagram

Figure 4, the Lantik PMJ Use Case Diagram, illustrates the roles of each actor within the Lantik PMJ application. Initially, users log in according to the access rights granted. Users complete the complaint/loan form and monitor the validation process until the ICT service is completed. The Super Admin and Sub-division Admin monitor the ongoing ICT service and export a PDF report once the service has been completed. The Ur Admin receives complaints/loan requests, checks asset data based on the suitability of the IT equipment and validation to inform the User that the service status is 'In Progress' or 'Pending'. If the service is underway, the Admin Ur updates the service status from 'In Progress' to 'Finished', accompanied by complete documentation as proof of service. At the end of this process, all actors can export data for reporting purposes regarding the requested service.

3.5. Activity Diagram

Figure 5 shows the Activity Diagram for the Lantik PMJ Application, involving four users: the PMJ Line Organisation Unit User, the PMJ ICT Division Super Admin, the ICT Sub-division Admin and the ICT Ur Admin. This process is initiated by the PMJ Organisational Unit User, who submits a service request by completing the service request form. This is then responded to by the Unit IT Admin, who receives the forwarded service message and checks the IT equipment asset data based on availability and suitability to confirm whether the service can be provided or not. If the request is not approved, the Unit Admin sends a 'Pending' status regarding the requested service to the user; if approved, it is followed up with an 'On Progress' status for the PMJ Unit User, and updates are provided in real time, accompanied by documentation and status updates provided to the PMJ Unit User. The Super Admin and Sub-Division Admin have the authority to monitor the progress of services carried out by Unit Admin personnel through real-time service updates provided by the Unit Admin. Users from the respective organisational units will also monitor the process and can export data for

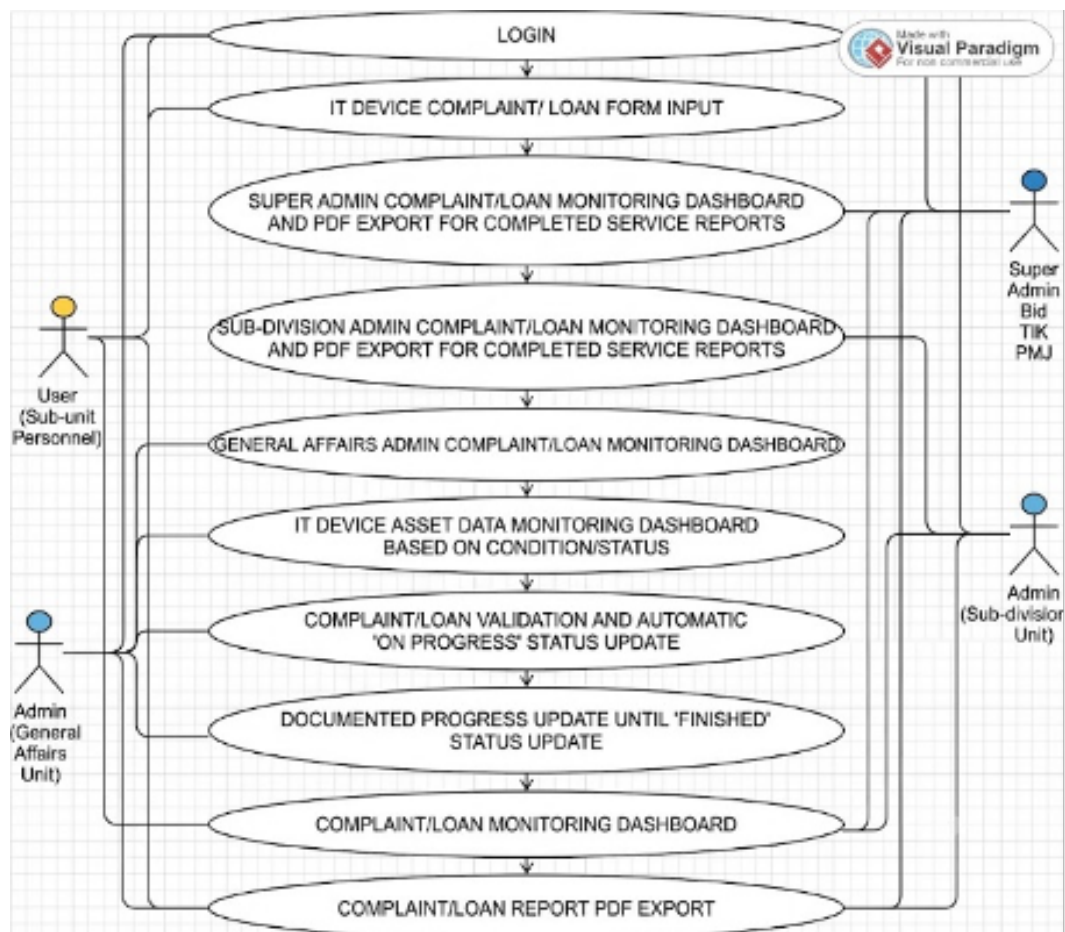


Figure 4. Use Case Diagram of the IT Equipment Complaint and Loan Management System

reports on services received from the Metro Jaya Regional Police's ICT Division.

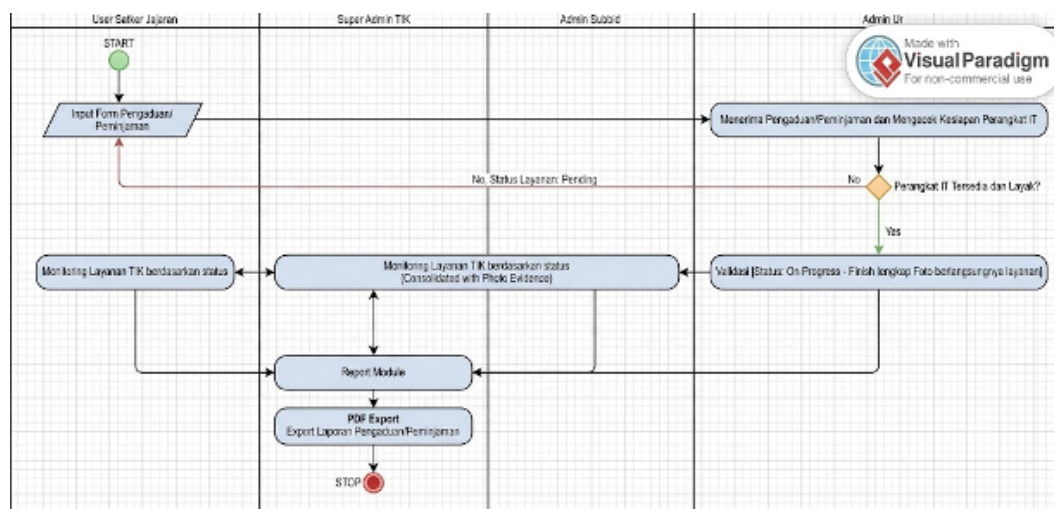


Figure 5. IT Device Complaint and Loan System Activity Diagram

3.6. Class Diagram

Figure 6 presents the database design of the system, which consists of four interrelated entities: User, Asset, Borrowing, and Complaint. The User entity stores account credentials and work unit information, including User Id as the primary key, Username, Password, Satker Origin, and User Status, and supports record, insert, delete, and update operations. The Asset entity manages the IT device inventory through attributes such as Asset Id as the primary key, Asset Name, Amount, Quantity, Device Condition, Procurement Date, and a Supporting Doc field in Medium Blob format for storing document attachments. The Borrowing entity records device lending

activities, comprising Borrowing Type, the person responsible (PJ), borrowing time and location, requesting satker, description, and supporting documents, and is linked to the Asset and User entities through the Asset Id and User Id foreign keys. Similarly, the Complaint entity captures device problem reports, including complaint type, complaint PJ, requesting satker, description, and supporting documents, while also referencing Asset Id and User Id as foreign keys. This relational structure ensures consistent and integrated data relationships among users, managed assets, borrowing transactions, and submitted complaints throughout the system.

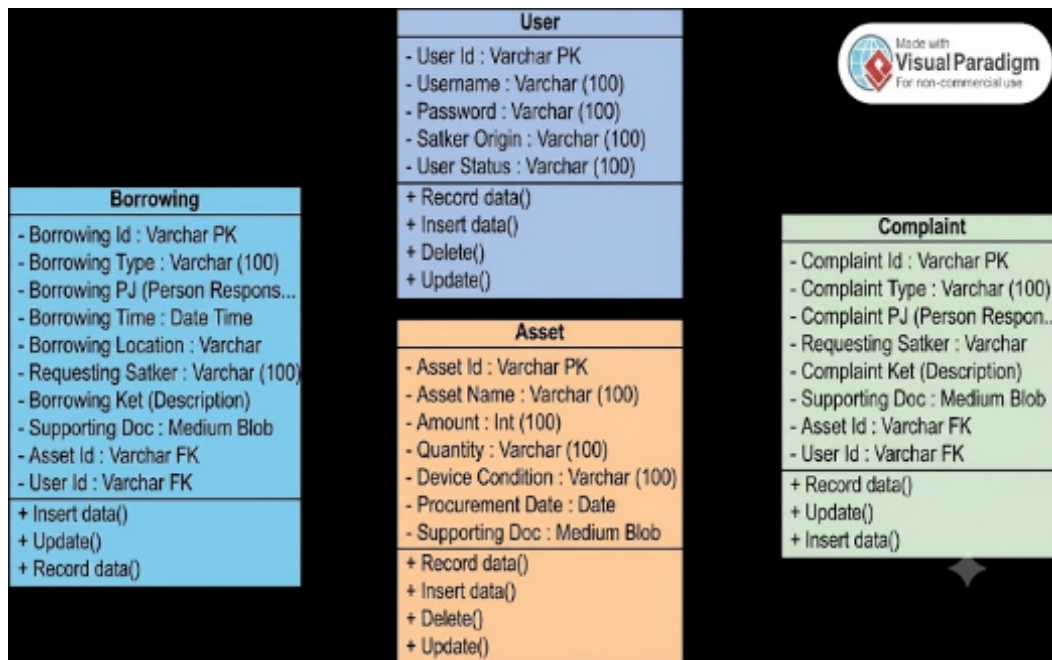


Figure 6. Database Design of the ICT Services and IT Device Lifecycle Inventory System

3.7. System Application UI and Output

Following the database design, the system implementation stage produces the web-based user interface of the LANTIK PMJ application, in which the loan service module serves as one of the core ICT service features. This module enables each work unit (satker) to submit requests for borrowing ICT equipment or services to Bid TIK Poldo Metro Jaya and allows administrators to manage the submitted requests within a single interface. The interface design of the loan service page is presented in Figure 7.

As illustrated in Figure 7, the loan service page is organized into two main components, namely the loan form and the loan data table. The left sidebar provides navigation to the Main Dashboard and the ICT Services menu, which consists of the Complaints, Loan, and User Pages submenus, while the header displays the page title “Loan Services Bid TIK Poldo Metro Jaya” together with notification and settings icons and the active Superadmin account. The loan form, labeled as the request form for loans of ICT services of Bid TIK Poldo Metro Jaya, contains input fields for Loan ID, Loan Location in a dropdown selection format, Loan Type, Loan Date, and Loan Status, and is equipped with Submit and Cancel buttons for confirming or withdrawing a request. Below the form, the Loan Data table lists the submitted loan requests with columns for sequential number, Loan ID, Loan Type, Location, Document, Loan Date, Subbid PIC, Ur. PIC, Status, and Action. Each record provides a supporting document in PDF format, a color-coded status badge such as Pending or Rejected, and a set of action buttons that allow the administrator to approve (Acc), reject (Reject), or delete (Del) the request, consistent with the Subbid and Ur units designated as service managers in the system architecture. The table is further supported by a pagination facility showing the number of displayed entries, namely “Showing 1–1 of 100 entries,” which enables administrators to navigate and manage large volumes of loan records efficiently.

Building upon the loan and complaint management modules, the system provides a report and statistics module that functions as a monitoring and evaluation instrument for the Super Admin. This module aggregates annual service data, highlights active loans that require immediate follow-up, and summarizes the overall performance of ICT services within Bid TIK Poldo Metro Jaya. The implementation of the report and statistics page is presented in Figure 8.

Loan Form
Request form for loan of ICT services, Bid TIK Polda Metro Jaya

Loan ID:

Loan Location:

Loan Type:

Loan Date:

Loan Status:

Loan Data

No	Plan ID	Loan Type	Location	Document	Loan Date	Subbid PIC	Unit PIC	Status	Action
1.	PMJ001	Videocon	WheBuilding		10-10-2025	Telekom	Network	Severely Overdue 61 days 61 days 61 days	

Showing 1 of 10 entries

Figure 7. User Interface Design of the ICT Service Loan Page in the LANTIK PMJ Application

← → ↻ localhost:8080/SuperAdmin/Report

ICT Bid Services Report & Statistics - PMJ

Year Filter: 2026 Displaying data for the year 2026

Warning: 1 loan is severely overdue (> 30 days) -- please follow up immediately. [View all loans](#)

Monitor Return Delays [On Progress]
Peminjaman aktif durasi bertepatan durasi terlama

No	#ID	Requester	Device	Location	Loan Date	Duration	Sub-Division PIC - Unit	Time Status	Action
1	PMJ004	Subbid Telekom	mixer	lapangan dreskrimus	23-04-2025	61 days	Subbid Telekom Ur. Yancom	Severely Overdue Exceeds 30 days	

Legend: Severely Overdue > 30 days Overdue 8-30 days Attention 1-7 days Normal Baru dipinjam

Summary Cards:

- Total Services: 12 (Complaints + Loans)
- Total Complaints: 7 (2 serious)
- Total Loans: 5 (2 returned)
- Total Assets: 11 (11 ready for use)

Figure 8. Implementation of the Report and Statistics Page with Return-Delay Monitoring for ICT Services

As shown in Figure 8, the “ICT Bid Services Report & Statistics – PMJ” page begins with a year filter that determines the reporting period, in this case displaying data for the year 2026, followed by a warning banner informing the administrator that one loan is severely overdue by more than 30 days and providing a direct link to view all loans. The “Monitor Return Delays [On Progress]” section lists active loans sorted by delay duration, with columns for sequential number, loan ID (#ID), requestor, device, location, loan date, duration, responsible Sub-Division PIC and unit, time status, and follow-up action. In the displayed example, loan PMJ004 for a mixer device has reached a duration of 61 days and is flagged with a red “Severely Overdue – Exceeds 30 days” status under the responsibility of Subbid Telekom / Ur. Yancom. The color-coded legend below the table clarifies the time-status classification, namely Severely Overdue for delays of more than 30 days, Overdue for 8–30 days, Attention for 1–7 days, and Normal for newly borrowed devices, while the action column provides a confirmation button for follow-up handling. At the bottom of the page, four summary cards present the annual statistics, consisting of 12 total services combining complaints and loans, 7 total complaints of which 2 are serious, 5 total loans of which 2 have been returned, and 11 total assets of which 11 are ready for use. This combination of delay monitoring, color-coded status classification, and aggregated statistics enables the Super

Admin to quickly identify problematic loans, evaluate overall ICT service performance, and support data-driven managerial decision making within Bid TIK Polda Metro Jaya.

3.8. System Testing

The system testing stage was conducted to verify that all modules of the ICT services and IT device lifecycle inventory application operate in accordance with the designed requirements. The testing employed the black-box method, in which system behavior was evaluated based on the inputs and outputs of each major feature without inspecting the internal source code. The test scenarios were designed to cover the five core aspects of the application, namely the login system based on role-based access levels (SuperAdmin, Admin Subbid-Ur, and User Satker Jajaran), the complaint and IT equipment loan submission forms used by subordinate work units, the complaint and loan dashboards with service validation and automatic progress-status updates across the four registered access levels, the asset addition form and asset dashboard that record new IT devices together with their lifecycle, availability, and status, and the user registration form and user dashboard that manage account creation according to the granted access rights. These scenarios correspond directly to the functional requirements defined in the system requirements analysis and the distinct user access rights established in the Service-Oriented Architecture design. The complete results of the system testing are summarized in Table 1.

Table 1. System Testing Results of the ICT Services and IT Device Lifecycle Inventory Application

No.	Test Case	Type of Test Case	Result	Status
1	Login System	Successful login according to access level (SuperAdmin, Admin Subbid-Ur, User Satker Jajaran)	PASS	Valid and Successful
2	Complaints/Loan Form	Successful addition of a complaint or IT equipment loan request by a user from a subordinate work unit	PASS	Valid and Successful
3	Complaints/Loans Dashboard	Successful display of complaint/loan data across the four registered access levels, and successful service validation by the Ur Admin with automatic progress-status updates	PASS	Valid and Successful
4	Asset Form Add and Asset Dashboard	Successful addition of new IT device data by a Work Unit user, together with its lifecycle, availability, and status, displayed on the asset dashboard	PASS	Valid and Successful
5	User Registration Form and User Dashboard	Successful user registration in accordance with the granted access rights, displayed on the Super Admin dashboard	PASS	Valid and Successful

Based on the results presented in Table 1, all test cases produced a PASS result and were classified as valid and successful, indicating that the implemented system fulfils the specified functional requirements. In the login system test, the application successfully authenticated users according to their respective access levels, namely SuperAdmin, Admin Subbid-Ur, and User Satker Jajaran, confirming that the role-based security mechanism restricts and grants access appropriately. The complaint and loan form test demonstrated that users from subordinate work units were able to submit complaints and IT equipment loan requests successfully, ensuring that the service request channel functions as intended. In the complaint and loan dashboard test, the submitted data were displayed correctly across the four registered access levels, and services validated by the Ur Admin automatically updated the progress status, verifying that the real-time service tracking mechanism operates without manual intervention. The asset form and dashboard test confirmed that new IT device data, together with lifecycle history, availability, and status information, were successfully added and displayed on the asset dashboard, thereby supporting asset inventory management from procurement to end-of-life. Finally, the user registration test showed that new accounts were created in accordance with the granted access rights and appeared correctly on the Super Admin dashboard, confirming proper operation of the user administration module. Because no failures or required feature changes were identified during testing, the development flow did not need to return to the requirements analysis stage, and the process proceeded to evaluation and documentation.

Overall, these results demonstrate that all major modules of the application are valid, reliable, and ready for operational deployment to support ICT service management and IT device lifecycle inventory at Bid TIK Polda Metro Jaya.

3.9. Discussion

The implementation of the Lantik PMJ application successfully transformed the Jakarta Metropolitan Police's ICT services from manual, fragmented processes into an integrated and fully documented digital workflow. By replacing informal communication channels with a structured web-based system, the application eliminates data duplication, clarifies service details, and ensures that every transaction is traceable. The Service-Oriented Architecture (SOA) approach allows modular service functions to operate independently while remaining seamlessly integrated, significantly improving the efficiency of internal technical operations.

Accountability and service integrity are further strengthened through a tiered role-based access structure and real-time status tracking. The systematic validation process, accompanied by mandatory documentation and automated PDF reporting, creates a permanent audit trail that supports internal oversight. Additionally, integrating IT device lifecycle management with daily complaint and loan services provides a centralized view of asset conditions. The built-in return-delay monitoring actively alerts administrators to overdue equipment, shifting asset management from a passive inventory task to a proactive managerial function.

The reliability of the system is confirmed by the black-box testing results, where all core functional scenarios passed successfully without requiring iterative redesign. Unlike previous digitalisation efforts in the police sector that primarily target public services, this study demonstrates that internal technical service digitalisation is equally vital for strengthening operational readiness and resource accountability. However, the current evaluation is limited to functional testing within a single environment. Future development should focus on conducting non-functional evaluations, such as security and performance testing, quantifying the impact on service response times, and integrating the application into a broader, unified ecosystem for the Indonesian National Police.

4. CONCLUSION

This study successfully developed the Lantik PMJ application using a Service-Oriented Architecture (SOA) to digitize the Jakarta Metropolitan Police's internal ICT services and IT device lifecycle management. By replacing manual, fragmented workflows with a centralized web-based system, the application significantly enhances service transparency, operational efficiency, and accountability through real-time tracking, role-based validation, and automated reporting. Furthermore, the integration of proactive asset lifecycle monitoring not only minimizes the risk of data loss but also ensures that frontline operational units receive reliable and timely technical assistance. Ultimately, this shift from manual administration to data-driven service management serves as a foundational step toward the broader modernization of the Indonesian National Police, reinforcing its institutional commitment to integrity and demonstrating that robust internal infrastructure is a critical prerequisite for trustworthy public service delivery.

For future development, it is recommended to integrate this platform into a unified, single-access ecosystem that connects all existing internal applications within the Indonesian National Police. Additionally, future research should incorporate comprehensive non-functional evaluations, such as security penetration and load testing, to further ensure the system's robustness, scalability, and long-term sustainability in supporting broader institutional operations.

DECLARATIONS

Author Contributions:

Oktavio Jati Moris Pereira: Conceptualization, Methodology, Software, Writing—original draft.

Anita Ratnasari: Validation, Visualization.

Desi Ramayanti: Supervision, Methodology, Writing—review & editing.

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The authors declare no conflict of interest regarding the publication of this paper.

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The data that support the findings of this study are available from the corresponding author upon reasonable request.

AI Use Statement:

The authors utilized DeepL Translator to translate the manuscript from Indonesian into English.

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No additional information is available for this paper.

REFERENCES

- [1] Z. Munirah and S. I. Murpratiwi, "Information Systems for Marine Affairs and Fisheries of Dompu District, West Nusa Tenggara Province Based on a Website Using the Bootstrap and CodeIgniter Frameworks," *J. Kecerdasan Buatan dan Teknol. Inf.*, 2024. [Online]. Available: <http://begawe.unram.ac.id/index.php/JBTI/>
- [2] Wikipedia, "Divisi Teknologi Informasi dan Komunikasi," 2025. [Online]. Available: https://id.wikipedia.org/wiki/Divisi_Teknologi_Informasi_dan_Komunikasi
- [3] A. B. Aji and A. Ratnasari, "A WAREHOUSE STOCK MANAGEMENT APPLICATION SYSTEM BASED ON EXPIRY DATES USING THE FIFO ALGORITHM (A CASE STUDY AT THE SUPERHIRO)," *J. Comput. Sci. Students*, vol. 9, no. 2, 2025.
- [4] H. K. Alam and H. Purnamasari, "The Effectiveness of the Digitalisation of Public Services through the Indonesian National Police Traffic Corps' Digital Application," 2024.
- [5] S. F. Rahmi et al., "Trends and Developments in Electronic Health Records (EHRs): A Literature Review on the Adaptation of Technology in Healthcare Services," *RIGGS J. Artif. Intell. Digit. Bus.*, vol. 4, no. 3, pp. 274–281, 2025, doi: 10.31004/riggs.v4i3.2008.
- [6] A. Syahrani Qotrunnisa, "Model Arsitektur Layanan Administrasi Pemerintahan Sistem Pemerintahan Berbasis Elektronik (Spbe) Pemerintah Daerah Kuningan," *JIKO (Jurnal Inform. dan Komputer)*, vol. 4, no. 3, pp. 187–192, 2021, doi: 10.33387/jiko.v4i3.3424.
- [7] A. Z. Nirmala, N. Rahmania, and B. Imran, "Pre-Crime Dan Teknologi : Mengantisipasi Terorisme Sebelum Terjadi Di Indonesia Pre-Crime and Technology : Anticipating Terrorism Before It Happens in Indonesia," vol. 9, no. 2, 2024.
- [8] G. F. Saputra and M. Yopan, "Analysis of Police Super App Innovation Implemented in the Ranks of the National Police in Public Services in the Community," *Santhet (Jurnal Sej. Pendidik. Dan Humaniora)*, vol. 9, no. 2, pp. 746–756, 2025, doi: 10.36526/santhet.v9i2.5284.
- [9] A. Zein, "Implementation of Service-Oriented Architecture in Mobile Applications to Improve System Flexibility, Interoperability, and Scalability," *J. Inf. Syst.*, vol. 2, no. 1, pp. 171–174, 2024. [Online]. Available: <http://gemapublisher.com/index.php/jiste>
- [10] S. Anisah, "Implementasi Metode Rapid Application Development," *STRING (Satuan Tulisan Ris. dan Inov. Teknol.)*, vol. 7, no. 1, 2022.
- [11] A. M. Rachmandany, R. L. L. Utama, M. Lubis, and N. Ambarsari, "Analysis and Designing Enterprise Architecture of PT. Adigas Jaya Pratama on Sales and Service Function Using TOGAF Framework," *IOP Conf. Ser. Mater. Sci. Eng.*, vol. 1077, no. 1, p. 12018, Feb. 2021, doi: 10.1088/1757-899X/1077/1/012018.
- [12] A. Y. Prasetyo, F. A. Prasetyo, and S. Z. Wibowo, "Perancangan Sistem Inventaris Berbasis Web dengan Metode Waterfall di CV. MITRA KARYA MANDIRI," *J. Inform. MULTI*, vol. 1, no. 4, pp. 372–378, 2023.
- [13] S. Nurfi, "Sistem Informasi Inventori Barang Pada CV. Putra Karya Baja Dengan Metode Waterfall," *Bina Insa. Ict J.*, vol. 7, no. 2, p. 145, 2020, doi: 10.51211/biict.v7i2.1403.

- [14] N. Hidayati, "The Use of Rapid Application Development (RAD) Model in the Development of Raw Material Inventory Information System," *Int. J. Inf. Syst. Technol.*, vol. 9, no. 158, pp. 82–92, 2025.
- [15] P. Mehrani and J. K. Tsotsos, "Self-attention in vision transformers performs perceptual grouping, not attention," *Front. Comput. Sci.*, vol. 5, 2023, doi: 10.3389/fcomp.2023.1178450.
- [16] N. Yedidiya Sorayana Mendrofa, A. Mahfuzie, M. Faisal, and W. Haryono, "Administrative Information System Design Web-Based School At Paud Taman Asuh Muslim Children Al Huda Muslim Al Huda," *Jubitek J. BIG DATA DAN Teknol. Inf.*, vol. 1, no. 1, pp. 1–7, 2023.
- [17] F. Gamaliel and P. Y. D. Arliyanto, "Perancangan Aplikasi Ujian Online Berbasis Website," *J. Manajemen Inform. Jayakarta*, vol. 1, no. 4, p. 270, 2021, doi: 10.52362/jmijayakarta.v1i4.503.
- [18] R. Syah, D. Darmawan, and A. Purnawan, "Analisis Faktor yang Mempengaruhi Kemampuan Literasi Digital," *J. Akrib*, vol. 10, no. 2, pp. 60–69, 2019.
- [19] Y. Brima and M. Atemkeng, "Saliency-driven explainable deep learning in medical imaging: bridging visual explainability and statistical quantitative analysis," *BioData Min.*, vol. 17, no. 1, p. 18, 2024, doi: 10.1186/s13040-024-00370-4.
- [20] Y. Brima and M. Atemkeng, "Saliency-driven explainable deep learning in medical imaging: bridging visual explainability and statistical quantitative analysis.," *BioData Min.*, vol. 17, no. 1, p. 18, Jun. 2024, doi: 10.1186/s13040-024-00370-4.