



ANALYSIS OF WEB-BASED INFORMATION SYSTEM DEVELOPMENT: A SYSTEMATIC LITERATURE REVIEW

Afiyatul Fadilah, Alifiya Suhaila, Anisa Muthoharoh, Fiveten Rodlotul Ma'wa, Khairunnisa M. Ola, Laila Alfi Rohmatin, Lailatur Rizkiyah, Rafichana Ika Salsabila, Rara Astiani Ananta, Zhafira Andina, Mansur Chadi Mursid

afiyatul.fadilah@mhs.uingusdur.ac.id,
anisah.muthoharoh24082@mhs.uingusdur.ac.id,
khairunnisa.m.ola24153@mhs.uingusdur.ac.id,
lailatur.rizkiyah25004@uingusdur.ac.id,
rara.astiani.ananta24083@mhs.uingusdur.ac.id,
mansurchadimursid@uingusdur.ac.id.

alifiya.suhaila@mhs.uingusdur.ac.id,
fiveten.rodlotul.mawa24085@mhs.uingusdur.ac.id,
laila.alfi.rohmatin24009@mhs.uingusdur.ac.id,
rafichana.ika.salsabila25021@mhs.uingusdur.ac.id,
zhafira.andina25018@uingusdur.ac.id.

UIN KH. Abdurrahman Wahid Pekalongan

Abstract

Website-based information systems have become an essential component in supporting organizational operations across various sectors due to their accessibility, flexibility, and efficiency. This study aims to analyze the development of website-based information systems through a Systematic Literature Review (SLR) approach. The review synthesizes findings from previous studies to identify commonly used software development methods, implementation trends, advantages, challenges, and research gaps. The SLR process includes formulating research questions, conducting literature searches, applying inclusion and exclusion criteria, extracting relevant data, and synthesizing the findings. The analysis indicates that the Waterfall model remains the most widely applied development methodology because of its structured and systematic approach, while Agile, Prototype, Rapid Application Development (RAD), and Scrum are increasingly adopted in projects requiring flexibility and rapid adaptation to changing requirements. Furthermore, website-based information systems provide significant benefits in improving operational efficiency, accessibility, data management, and service quality. However, successful implementation depends on selecting an appropriate development methodology based on project characteristics and organizational needs. This study provides a comprehensive overview of current research trends and offers recommendations for future studies focusing on hybrid development methods, information security, and the integration of emerging technologies into website-based information systems.

Keywords: Website-Based Information System, Systematic Literature Review, Software Development Life Cycle, Waterfall, Agile, Information System Development.

Article History

Received: Juli 2026
 Reviewed: Juli 2026
 Published: Juli 2026

Plagiarism Checker
 No 237.u873247.fh8374

Copyright : Author
 Publish by : Kohesi



This work is licensed under a [Creative Commons Attribution-NonCommercial 4.0 International License](https://creativecommons.org/licenses/by-nc/4.0/)

Background

Advances in information technology have prompted organizations to utilize information systems to support operational activities, data processing, and decisionmaking. An information system is essentially a set of interacting components designed to collect, manage, store, process, and disseminate the information needed by an organization. In the modern context, information systems serve not only as administrative tools but also as strategic means to enhance efficiency, data accuracy, and service quality.



One of the most widely used forms of implementation today is the web-based information system. This system utilizes the internet and a web browser as access media, allowing users to access information anytime and anywhere as long as they are connected to the network. The main characteristics of web-based systems are ease of access, flexibility of use, ease of centralized data updates, and the ability to reach many users simultaneously. Due to these advantages, web-based information systems are widely applied in academic services, administration, public services, commerce, and organizational data management (Paksi et al., 2023) .

In the design process, information system development requires a systematic approach to ensure that the resulting system meets user needs. Information system development encompasses a series of activities ranging from requirements analysis, design, implementation, testing, to maintenance. Structured phases are necessary to minimize errors, improve software quality, and ensure the system operates according to its intended objectives. Thus, system development cannot be carried out haphazardly but must follow a clear and measurable methodology (Adham, 2024) .

One of the most commonly used approaches in system development is the System Development Life Cycle (SDLC). The SDLC is a framework that describes the system development process in stages, ranging from planning, analysis, design, implementation, testing, to maintenance. Various system development methods— such as Waterfall, Agile, Spiral, RAD, and Prototype—have been developed to accommodate project requirements, system complexity, and changing user needs. Each method has its own advantages and limitations, so the choice of method must be tailored to the characteristics of the project at hand.

On the other hand, in the preparation of scientific studies or research on information systems, the Systematic Literature Review (SLR) serves as a crucial approach for summarizing scientific evidence in a structured manner. An SLR is conducted through the stages of formulating research questions, literature search, article selection, data extraction, and synthesis of findings. This approach helps researchers gain a comprehensive overview of developments in a specific topic, identify research gaps, and formulate a stronger theoretical foundation. Although it offers advantages in terms of systematization and objectivity, an SLR also has limitations, particularly regarding the availability of relevant literature and the quality of the analyzed articles.

Web-Based Information Systems

1. Basic Definition of Information Systems

Information systems are procedures consisting of a collection of interconnected and structured subsystems that integrate hardware, software, databases, and users. These systems are designed to support the processes of collecting, processing, updating, and distributing information through telecommunication systems in daily organizational or business transactions to achieve common organizational goals. The primary objective of an information system is to transform raw data into meaningful and useful information for its users. However, data alone are insufficient to produce valuable information. Useful information must possess three fundamental qualities: relevance, timeliness, and accuracy. To perform their functions effectively, information systems require several essential components that work together to support their operations:

- a. **Hardware:** Consists of physical components such as monitors, keyboards, central processing units (CPUs), and printers
- b. **Procedures:** A set of rules and guidelines used for data processing and generating the desired output.



- c. Database: A database is a collection of interrelated tables used to store, organize, and manage data.
- d. Computer Networks and Data Communication: A system that enables the sharing and accessibility of data resources among users and devices.

However, in practice, not all information systems include all of these components. For example, a personal information system typically involves only a single user and a single computer, and therefore does not require a computer network or data communication system. In contrast, group information systems involve multiple users and multiple computers, making network and communication technologies essential for their operation (Ni Wayan Purnawati, S.T. et al., n.d.) .

2. Definition of Web-Based Information Systems

A web-based information system is an application developed using web technologies and supported by a database to manage specific types of data (Raharjo, 2009) . A web-based information system fundamentally shares the same concept as a general information system but differs in its use of web technologies and its ability to be accessed online. Its development relies on web programming languages, which are divided into two categories: client-side and server-side programming languages. Client-side processing is executed through a web browser, whereas server-side processing is handled by a web server running on a specific operating system. In practice, a website serves as a platform that integrates these programming languages, enabling the effective development, deployment, and operation of web-based software applications.

3. Characteristics of Website-Based Information Systems

A web-based information system is a system that utilizes the internet and a web browser as its primary means of access, allowing users to access services without being restricted by a specific physical location. This system generally integrates various components—such as data, processes, indicators, devices, and human resources—into a single, interconnected digital service (Sintaro, 2022) . In various studies, technical quality is also viewed as an important characteristic, particularly in terms of usability, efficiency, portability, and the alignment of functions with user needs (Info, 2023) . Another characteristic is the system's ability to be accessed via a variety of devices and locations, thereby supporting user mobility (Sintaro, 2022) . The interface is also designed to make the information search process faster and the system easier to use (Ahmad & Kurnia, 2022) . In addition, structured access rights management is necessary to differentiate user permissions and maintain data security.

4. Benefits and Applications of Web-Based Information Systems

a. Benefits

The use of web-based information systems generally contributes to improved work efficiency, data accuracy, and service speed compared to manual procedures (Laurensa et al., 2025) . These systems help reduce reliance on manual record-keeping, minimize data entry errors, and speed up the reporting process. (Additionally, the web-based system allows information to be accessed 24 hours a day, facilitates the dissemination of information, and supports broader promotional activities (Septiani et al., 2021) . In operational practice, this system also plays a role in improving the efficiency of inventory management, transactions, administration, and user services (Sintaro, 2022) . For business owners, websites can serve as a means to expand market reach at a relatively lower cost (Ahmad & Kurnia, 2022) . From an archiving perspective, this system simplifies the process of storing and retrieving documents, ensuring that records are better preserved and less prone to damage, loss, or the accumulation of files (No et al., 2023)



b. Implementation

The applications of web-based information systems are diverse and can be found across various fields. In the trade and SME sectors, these systems are used to support sales, inventory management, and online payments(Sembako et al., 2025) . In the fields of education and libraries, websites are used for managing schedules, grades, book circulation, and academic services (Feladi et al., n.d.) Meanwhile, in public and institutional services, websites are widely used for village administration, health services, mosque management, archives, registration, and e-learning as a response to the shortcomings of manual systems, which are slow, error-prone, and difficult-to-access systems (Pujiantoro et al., 2023) In general, the implementation of web-based systems serves as a solution to improve the accessibility, efficiency, and accuracy of services across various sectors, both public and private (Sembako et al., 2025)

Information System Development

1. System Development Concepts

Information system development is a planned process aimed at designing, building, and implementing information systems so that they can efficiently meet the needs of users and organizations. The information system development process focuses not only on software development but also encompasses organizational needs analysis, business process design, database management, user interface development, and evaluation of the performance of the implemented system. By following a structured development process, organizations can create information systems that transform data into accurate, relevant, timely, and easily accessible information, thereby supporting operations and decisionmaking.

In practice, the information system development process is carried out using the *system development life cycle* (SDLC) methodology or the latest development techniques such as agile, *rapid application development* (RAD), and prototyping. SDLC is the most commonly used approach because it establishes clear stages, including planning, requirements analysis, system design, implementation, testing, and system maintenance. Each step is interrelated, so errors that might occur early on can be minimized before the system is implemented. Additionally, advances in digital technology have led to the increasing adoption of the Agile method, as it is more adaptable to changes in user needs during the development process (E. et al., 2023; Rahmi, 2023) .

Through a *systematic literature review*, it was found that structured methods based on *the system development life cycle* remain the most widely used in information system development in Indonesia because they involve systematic steps and result in systems that are easier to manage. This study also indicates that object-oriented methods are being increasingly adopted as the complexity of the information systems being developed increases.

The system development life cycle is the foundational framework for creating information systems that can be combined with various models, such as *Waterfall* or *Rapid Application Development* (RAD). The choice of method must be tailored to the project's characteristics, the system's complexity, available resources, and user requirements so that the developed system meets high standards and achieves the organization's objectives. It can be concluded that *the system development life cycle* is the most commonly applied method because it produces better-planned systems that are easier to evaluate, as they offer superior quality compared to development that does not follow specific stages (Ramadhan et al., 2023)

2. Objectives of Information System Development

The primary objective of developing an information system is to create a system that can provide accurate, relevant, targeted, and reliable information to support all activities within the organization. The information generated by the system is used by management as a reference in planning, controlling, evaluating, and making strategic decisions. Therefore, the



development of an information system is not only intended to replace manual processes with computerized systems but also to improve the overall quality of business processes so that the organization can operate more effectively and efficiently.

The development of information systems aims to improve the efficiency of an organization's operations by automating various administrative tasks, data processing, document storage, and report generation. With this automation, tasks are completed more quickly, operating costs can be reduced, and the likelihood of human error can be minimized. In addition, information systems facilitate the integration of data across organizational departments so that information can be accessed quickly without data duplication or uncertainty (Putri et al., 2023) .

Another objective is to improve the quality of service provided to users. By using an integrated information system, services can be delivered more quickly, more clearly, and with greater accessibility. Information systems also help improve data security through measures such as verifying user identities, managing access permissions, regularly backing up data, and implementing safeguards against various cyber threats. As a result, organizations not only see improved performance but can also ensure the confidentiality, integrity, and availability of their data.

By applying the right system development methods, you can improve software quality, speed up the system development process, and produce systems that better meet the needs of users. The main objectives of using system development methods are to create highquality software, reduce the likelihood of project failure, accelerate system development, and increase user satisfaction with the resulting system.

3. Stages of System Development

The system development phases are a series of processes carried out systematically to produce an information system capable of meeting user needs effectively, efficiently, and sustainably. In practice, these stages are known as the System Development Life Cycle (SDLC), a framework that governs all system development activities, from requirements identification to system maintenance after implementation (Dwanoko, 2016) . Implementing the SDLC helps organizations minimize the risk of project failure, improve software quality, and ensure that the system built aligns with business objectives and user needs.

Planning

The first phase is **planning**, which is the process of determining the system development objectives, the project scope, the required resources, cost estimates, the work schedule, and the project feasibility analysis (Dwanoko, 2016) . During this phase, the problems faced by the organization are identified so that appropriate solutions can be formulated. Thorough planning serves as the cornerstone of successful system development because it minimizes the potential for errors in subsequent stages.

Requirements Analysis (System Analysis)

Once the planning phase is complete, a **requirements analysis** is conducted to identify user and organizational needs in detail. Activities at this stage include interviews, observations, distributing questionnaires, and analyzing documents related to business processes. The results of the analysis are then documented in a *Software Requirement Specification* (SRS), which serves as a reference during the design process (Dwanoko, 2016) . An accurate requirements analysis will result in a system that meets user expectations and is capable of optimally supporting business processes.



System Design

The **system design** phase aims to translate user requirements into a technical design ready for development. The design process includes database design, user interface (UI) design, system architecture, process flows, and the selection of technologies to be used. At this stage, various models are typically created, such as *Use Case Diagrams*, *Activity Diagrams*, *Entity Relationship Diagrams (ERDs)*, and system interface designs (Silitonga et al., 2021) . A well-designed system simplifies the implementation process while improving the quality of the resulting system.

Implementation

The implementation phase is the process of turning the design into a working application or system. Developers begin writing program code, building databases, and integrating all system components in accordance with the established design. At this stage, effective collaboration between programmers, systems analysts, and testers is essential to ensure that every function operates according to the specified requirements (Silitonga et al., 2021) . A disciplined implementation process will result in a stable, user-friendly system that meets the organization's needs.

Testing

Before the system is used by users, **testing** is conducted to ensure that all functions are working properly. Testing is performed to identify bugs, evaluate system performance, test data security, and ensure that the system meets user needs. Some common types of testing include *unit testing*, *integration testing*, *system testing*, and *user acceptance testing (UAT)* (Silitonga et al., 2021) . This stage is crucial because it directly impacts the quality, reliability, and user satisfaction with the developed system

Maintenance

The final stage is **maintenance**, which involves ensuring that the system continues to function properly after implementation. Maintenance includes fixing errors discovered after the system is in use, updating features to meet user needs, enhancing security, and adapting to technological advancements and changes in the organization's business processes (Dwanoko, 2016) . With ongoing maintenance, information systems can have a longer lifespan and remain relevant in supporting the organization's activities.

The stages of system development using the **System Development Life Cycle (SDLC)** approach provide a structured framework for building information systems. From the planning, requirements analysis, design, implementation, and testing stages through to maintenance, each stage plays an interrelated role in producing a high-quality, efficient system that meets user needs. Therefore, the application of SDLC not only increases the success of system development projects but also provides added value to organizations as they navigate the rapid pace of technological advancement.

System Development Life Cycle (SDLC)

1. Definition of the *System Development Life Cycle (SDLC)*

The **System Development Life Cycle (SDLC)** is a method or framework used to develop information systems in a structured, systematic, and planned manner. The SDLC serves as a guideline for system developers in designing, building, testing, implementing, and maintaining



systems so that they can effectively and efficiently meet user needs. With clearly defined stages, the SDLC can minimize the risk of errors during the development process while improving the quality of the resulting system (Dwanoko, 2016) . Conceptually, the SDLC does not focus solely on the software development process but also encompasses the management of the entire system development cycle, from identifying user needs to evaluating the system after implementation (Silitonga et al., 2021) .

This approach allows each phase to be carried out in a focused manner so that every decision made is based on a solid analysis. Thus, the developed system not only functions according to current needs but also has the flexibility to be expanded in the future. In the field of information technology, the SDLC has become one of the most widely used methodologies because it creates a well-documented development process. Each phase produces an output that serves as the foundation for the next phase, thereby facilitating coordination among team members, reducing the risk of miscommunication, and enhancing the effectiveness of project management (Achlisson et al., 2025) .

In addition, the SDLC also helps organizations control costs, development time, and the quality of the systems being built, thereby increasing the likelihood of project success. Various development models—such as **Waterfall**, **Prototype**, **Rapid Application Development (RAD)**, **Spiral**, and **Agile**—are essentially implementations of the SDLC concept tailored to the characteristics of the project and the organization's needs. Although they employ different approaches, all these models still adhere to the core principles of the SDLC, namely producing high-quality systems through a structured development process oriented toward user needs (Achlisson et al., 2025) . Therefore, the application of the SDLC helps organizations produce higher-quality systems, minimize the risk of project failure, and ensure that the developed systems can optimally meet user needs.

2. Phases of the System Development Life Cycle (SDLC)

In scientific literature, the SDLC process is viewed as a systematic and structured approach to software development. The main phases of this approach include planning, requirements analysis, system design, implementation, testing, and maintenance. This process is considered important because it can be used to ensure that software development aligns with user needs.

During the planning stage, the system's goals, the scope of work, the project's feasibility, and the required resources are defined. This stage is significant because it lays the groundwork for the direction of development and mitigates risks at the project's outset. The SDLC is described as a method that begins with the planning stage in an article comparing software development techniques (Pricillia T. & Zulfachmi, 2021).

The next phase is the requirements analysis phase. This phase is conducted to determine the functional and non-functional requirements from both the user's and the organization's perspectives. During the requirements analysis phase, data collection can be carried out through interviews, observations, and documentation reviews to ensure that the system being developed truly meets user needs. It is during this phase that the system requirements specifications are drafted, as any errors in this analysis will result in design flaws.

The purpose of the system design stage is to translate the collected requirements into design solutions, such as system architecture, business processes, database, and interface designs. An effective design makes it easier for developers to build an application and reduces the likelihood of future changes during implementation. Research conducted in the field of web-based school information system design reveals that the SDLC plays a significant role in the initial structuring of the system (Dewa S. & Azizah N. 2024).

The implementation or system development phase is the stage in which the design is brought to life through programming. During this phase, developers take the design and build

the application, whether it is web-based, desktop-based, or mobile. In most research based on the SDLC, the implementation process is carried out in stages so that each developed component can be tested (Nagara et al., 2023).

The next phase is testing, which aims to ensure that the system functions according to specifications and is capable of performing its intended functions. Testing is a critical aspect of the SDLC because a system that has not been tested is at risk of malfunctioning when used by end users. In academic journals, testing is conducted to determine whether a system is suitable for implementation in a production environment.

The final phase is maintenance, during which errors are corrected, updates are applied, and modifications are made to meet the needs of current conditions. The importance of maintenance lies in the fact that any information system will require some form of modification or change at some point due to changes in processes or user needs.

3. System Development Methods:

a. Waterfall

The waterfall model is one of the SDLC models that outlines the software development process in a step-by-step and sequential manner. To move from one phase to the next, all previous phases must be completed first, resulting in a structured, well-documented, and easily manageable software development process. The waterfall model is widely used because of its well-structured process, which helps developers create systems that meet user needs (Yudha et al., 2023).

The first phase is requirements analysis. In this phase, system requirements are analyzed using methods such as observation, interviews, document review, and analysis of current business procedures. Each requirement is recorded and documented to serve as a reference for future system development. This phase is crucial as it forms the foundation for determining the system's functions and specifications (Ramadhan et al., 2023).

The next phase is system design. In this phase, designers develop the system architecture, database, user interface, and process implementation. The results of this design serve as a guide for the programming process, thereby reducing the likelihood of errors during that process. Once the system is designed, the implementation process becomes easier because all components have been systematically designed (Fachri et al., 2024).

The third phase is implementation, which is the process of writing code to create a computer-based system using a programming language. All modules are designed in accordance with the design process and integrated into a single system. In implementations that use the Waterfall Model, programmers find it easier to handle each module because the requirements have been established from the early stages (Vafky Ideal et al., 2024). Once the implementation process is complete, the testing phase begins to ensure that the system's functions operate as intended by the users. This testing process aims to identify any bugs and verify whether the system is functioning properly. If bugs are found, they must be fixed first.

The next step is deployment, which involves implementing the system in the user environment to ensure it can be used for operational purposes. Once the system is in use, it undergoes a maintenance phase, which includes fixing errors in the system, upgrading the system, adjusting the system according to changes in requirements, and adding new features to it. The maintenance phase is crucial to ensure that the system continues to operate in accordance with user needs.

There are several advantages to the Waterfall approach, such as a structured development process, comprehensive documentation, and better project control because each phase is linked to specific objectives. However, this approach has some limitations because it does not offer flexibility in adapting to changes in requirements that may occur during the development



process. Therefore, this approach is particularly well-suited for projects where system requirements are known in advance (Fachri et al., 2024; Vafky Ideal et al., 2024).

b. Agile (Scrum, XP)

The Agile method is a software development approach that is carried out in stages (*iteratively*) and continuously (*incrementally*). This method is designed to enable development teams to adapt quickly to changes in user requirements as the development process unfolds (Pambudi & Dwi, 2020). Unlike traditional methods such as Waterfall, which require each phase to be completed sequentially, Agile provides the flexibility to make changes at any stage without having to repeat the entire development process. Additionally, Agile emphasizes the importance of active collaboration between the development team and users, ensuring that system requirements are understood and adjusted more accurately. Each development outcome is evaluated periodically to ensure that software quality is maintained and meets user expectations. Various studies also show that Agile has become one of the most widely used methods in information system development because it enhances flexibility, accelerates project completion, and produces software that better aligns with user needs.

One of the most widely used Agile frameworks in software development is Scrum. This framework divides the development process into several short work cycles called *Sprints*, which typically last between one and four weeks. In each Sprint, the development team focuses on completing features that have been prioritized in *the Product Backlog*. The result of each Sprint is a usable portion of the system, so users can immediately try it out and provide feedback for future development. In practice, Scrum has three main roles: *the Product Owner*, *the Scrum Master*, and *the Development Team* (Marissa Utami, 2022). *The*

Product Owner is responsible for prioritizing system requirements based on user needs; *the Scrum Master* ensures the Scrum process follows the rules and helps the team overcome obstacles; and *the Development Team* is responsible for developing and delivering the product. In addition, Scrum also involves several key activities, such as *Sprint Planning*, *Daily Scrum*, *Sprint Review*, and *Sprint Retrospective*. These activities aim to plan work, monitor progress, evaluate results achieved, and continuously improve the development process. With this approach, Scrum enhances team collaboration, accelerates project completion, and makes it easier for the team to adapt the system to changing user needs.

In addition to Scrum, another Agile method widely used in software development is *Extreme Programming* (XP). This method is designed to produce high-quality software by implementing disciplined development practices and actively involving users throughout the development process (R. Rahmi et al., 2016). XP is based on four core values: *communication*, *simplicity*, *feedback*, and *courage*. These values are implemented through various practices, such as *pair programming*, *continuous integration*, *refactoring*, *test-driven development* (TDD), *small releases*, and *continuous testing*. The implementation of these practices helps development teams identify errors early on, maintain high code quality, and facilitate adjustments when user requirements change. Therefore, XP is particularly well-suited for projects with frequently changing requirements, carried out by small to medium-sized teams, and requiring intensive communication and collaboration between the development team and users throughout the development process.

In general, Scrum and *Extreme Programming* (XP) are two Agile frameworks that share the same goal: to produce high-quality software that meets user needs more quickly and flexibly. Although they share a similar goal, the two have different implementation focuses.

Scrum places greater emphasis on project management, the division of roles within the team, and the organization of workflows to ensure that the development process proceeds in a structured manner. Meanwhile, XP focuses more on the implementation of technical practices aimed at improving code quality and ensuring that the developed software remains stable even when requirements change.



Because they complement each other, Scrum and XP are often implemented together in information system development. Scrum helps teams manage processes and coordinate work, while XP supports the development process through technical practices that ensure software quality. The combination of these two approaches makes the development process more effective and adaptable to change, and results in software that better meets user needs. c. Spiral Model

The Spiral Model is an approach within the System Development Life Cycle (SDLC) designed with risk management as its primary focus. This model combines the strengths of phased design and prototyping approaches, so it is often referred to as a meta-model because it can be combined with other development methods as needed by the project (Alshamrani & Bahattab, 2015). The process proceeds iteratively in the form of evolving cycles: starting with basic requirements, then gradually adding features and functions in each cycle until the system is complete and ready for deployment.

Each iteration in this model consists of four main stages that proceed systematically. The first stage is planning, during which the development team communicates intensively with users to understand and clearly define the system requirements. Next comes risk analysis, which involves identifying potential technical, cost, schedule, and operational risks, as well as devising alternative solutions; an initial prototype is also typically created at this stage to test the concept and reduce uncertainty. The third stage is development and testing, where the system or its modules are built according to specifications and then tested to ensure quality and compliance with requirements. Finally, an evaluation is conducted by users and stakeholders; if the results are satisfactory, the process proceeds to the next iteration, but if there are still shortcomings or changes needed, the cycle is repeated.

The Spiral Model has several advantages, including being well-suited for projects with medium to high risk levels, providing flexibility to accommodate changing requirements along the way, and enabling early detection of risks to avoid major failures. Additionally, regular user involvement ensures the final system better aligns with expectations and actual needs. However, this model also has weaknesses, such as relatively higher development costs due to the need for multiple cycles and specialized experts for risk analysis, as well as the requirement for extensive and complex documentation. Therefore, this model is best suited for complex, long-term projects where requirements are not yet fully defined, and when risk assessment is a key factor in the project's success.

d. Rapid Application Development (RAD)

The Rapid Application Development (RAD) method is a software development approach designed to reduce the time required for system design and implementation, resulting in a significantly shorter development cycle compared to conventional methods. This method is an evolution of the linear sequential model that applies the principles of component-based development; thus, once system requirements are clearly understood, developers can produce a fully functional system in approximately 60 to 90 days. According to James Martin, this method is divided into four main phases: first, the Requirements Planning phase, which is a process of discussion among users, management, and the technical team to formulate business requirements, project scope, constraints, and system specifications until a mutual agreement is reached; second, the User-Collaborative Design phase, in which users and systems analysts work together to create models and prototypes that illustrate the system's processes, inputs, and outputs of the system; third, the Development phase, which includes coding, unit and integration testing, and provides an opportunity for users to suggest improvements throughout the process; and fourth, the Final Implementation phase, which covers data conversion, final testing, and migration to the new system with streamlined processes to ensure faster completion. In this study, the RAD method was applied to build a REST API for storage services



at PT. XYZ, and it proved capable of producing a system that met requirements and operated effectively in a relatively short time (Perdana, 2018) .

d. Prototype

The *Prototype* Method is a system development method that focuses on user involvement from the early stages of development. In this method, developers first create an initial model (*prototype*) that illustrates the system to be built (Descania, 2023) . The prototype is then tested by users to gather feedback on the system's requirements, appearance, and functionality. This approach is particularly suitable when user requirements are not yet fully clear or are still likely to change during the development process. Through user feedback, developers can gradually refine the prototype until the system's requirements fully align with expectations. Consequently, the risk of misinterpreting user needs can be minimized from the outset, making the development process more effective and resulting in a higher-quality final product. Various studies have also shown that the *prototyping* method is effective in information system development, particularly for projects that require a high degree of flexibility and intensive communication between developers and users.

The system development process using *the Prototype* method generally involves several iterative stages. These stages include *requirement gathering*, *quick design*, *building a prototype*, *user evaluation*, *prototype refinement*, and *final implementation*. In the initial stage, developers identify system requirements through interviews, observations, and discussions with users to understand the expected functions and features. Based on these requirements, developers create a preliminary design and develop it into a prototype that users can immediately test. Next, users provide feedback on the system's interface, functionality, and performance. This feedback serves as the basis for gradually refining and improving the prototype until it meets user needs. Once the prototype is deemed to meet expectations, the system is then developed into a final product ready for implementation. Through this iterative process, changes can be made early in the development phase, thereby reducing the risk of errors in system development and resulting in a higher-quality system.

The Prototype Method has various advantages that make it widely used in information system development (Saputri et al., 2023) . One of its main advantages is its ability to help developers understand user needs more quickly by creating an initial model of the system. User involvement from the early stages also makes communication between developers and users more effective, thereby reducing the risk of misunderstandings regarding system requirements. Furthermore, the iterative evaluation process allows the system's interface and functionality to be continuously refined, resulting in a system that is easier to use and aligns with user expectations. On the other hand, the *Prototype* method also has several limitations. Constant changes in user requirements can lead to scope creep, potentially increasing development time and costs. Furthermore, it is not uncommon for users to view the created prototype as the final product, even though the system still requires refinement to meet software quality standards. Therefore, the successful implementation of *the Prototype* method heavily depends on effective communication between developers and users, as well as the team's ability to manage the project scope so that the development process remains effective and aligned with the established objectives.

In general, the *Prototype* method is a system development approach that is suitable for use when user requirements are not yet fully clear or are still subject to change. By actively involving users in every stage of development, this method is able to produce systems that are better suited to user needs, easier to use, and more flexible. Therefore, the *Prototype* method



is widely applied in various information system development projects because it can improve the effectiveness of the development process as well as the quality of the resulting software.

Systematic Literature Review (SLR)

1. Definition of a Systematic Literature Review (SLR)

A Systematic Literature Review (SLR) is a research method used to analyze and summarize various previous studies in a systematic, structured, and accountable manner. According to this definition, an SLR is a technique used by researchers to interpret and evaluate previous research on a specific topic in a clear, systematic, and replicable manner.

The SLR method was developed to address the shortcomings of traditional literature reviews, which tend to be subjective and prone to researcher bias in both the selection and analysis of literature. Therefore, SLR employs clear and systematic procedures, ranging from the formulation of research questions, literature search, and article selection to data analysis and synthesis. With these structured procedures, the research process becomes more transparent, and the results can be replicated by other researchers.

In addition, SLR emphasizes the importance of a transparent literature search process to objectively assess the quality, scope, and relevance of research. This transparency allows other researchers to replicate the same procedures to obtain comparable results or update findings in line with scientific advancements. As it has evolved, the SLR method is not only used in the field of health but has also been widely applied across various disciplines, such as computer science, management, and information systems. This demonstrates that SLR is an effective method for collecting, evaluating, and synthesizing existing empirical evidence to gain a deeper understanding of a research topic.

Therefore, it can be concluded that a Systematic Literature Review (SLR) is a research method conducted in a systematic and structured manner to identify, evaluate, and synthesize various previous studies. An SLR aims to minimize research bias, identify research gaps, and serve as a strong foundation for future research.

2. Objectives of the Systematic Literature Review (SLR)

A Systematic Literature Review (SLR) is designed to systematically identify, evaluate, and synthesize the findings of previous research in order to gain a comprehensive understanding of a research topic. This method also aims to minimize bias in the literature review through a transparent search process and enables other researchers to replicate the results. In addition, an SLR can reveal differences in research findings through a synthesis of various previous studies (Priharsari, 2022) .

3. Characteristics of an SLR

The characteristics of a systematic literature review (SLR) are features that indicate that a literature review was conducted using a clear, well-planned, and accountable scientific method, rather than merely a general summary of various sources. In a systematic literature review (SLR), the research process begins with formulating a clear research question, followed by a systematic literature search, the selection of articles based on specific criteria, the extraction of key data from each study, and the synthesis of results in an organized manner. This structured process gives SLRs stronger methodological standards compared to conventional reviews. While conventional literature reviews are often conducted in a more flexible, subjective manner and depend on the author's choices, SLRs require precision, procedural transparency, and consistency at every stage. Therefore, SLRs can produce more objective analyses with minimal bias, better reflecting the state of research on a specific topic. These



characteristics make SLRs particularly well-suited for identifying research trends, uncovering research gaps, and serving as a solid foundation for further studies.

(Lusianti et al., 2024) Key Features of SLR :

a. Structured A systematic review (SLR)

is considered structured because each step of the research follows procedures that are clearly and systematically defined from the outset. These procedures typically include the study background, the formulation of research questions, the literature search strategy, the list of keywords used, the criteria for including or excluding articles, the quality assessment process, data extraction techniques, and the methods for synthesizing the results. With standardized procedures like these, researchers do not select articles arbitrarily but rather based on measurable and scientifically accountable steps. This structured nature makes SLRs methodologically stronger than conventional reviews.

b. It is clear

The SLR must be transparent, meaning that all steps involved in searching for, screening, and selecting articles must be clearly explained to readers. This transparency includes the databases used, the search terms employed, the number of articles found, the reasons certain articles were excluded, and the final steps leading to the selection of articles suitable for analysis. In this way, readers can understand how researchers make decisions and assess whether the review process was conducted fairly and accurately. Transparency is also essential for maintaining academic trust in the study's results. (Wahono, n.d.)

c. Reproducible

A systematic literature review (SLR) is reproducible because its procedure allows other researchers to follow similar steps and obtain nearly identical results when using the same sources, keywords, and criteria. This characteristic is crucial in scientific research because it demonstrates that the review's findings are not merely personal opinions, but stem from a consistent and testable procedure. The replicability of this process also helps strengthen the validity of the research because the process can be examined by other researchers at different times. In other words, a good SLR must provide clear explanations so that it can be replicated in an academic context. (Wahono, n.d.)

d. An unbiased

SLR prioritizes impartiality in the literature selection and analysis process. This means that decisions to include or exclude articles must be based on predefined criteria, not on the researcher's preferences or subjective judgments. This impartiality is crucial for minimizing the potential for bias—a common issue in narrative reviews, where authors tend to select only sources that align with their own perspectives. With an unbiased approach, the results of an SLR become more neutral, balanced, and reflective of the actual state of the research. (Wahono, n.d.)

e. Scope

A systematic literature review (SLR) strives to be comprehensive, meaning it covers as many relevant studies as possible on the topic under investigation. The purpose of this comprehensive approach is to ensure that the results obtained truly reflect the progress of existing research, rather than just a small portion of the available literature. Therefore, searches are generally conducted across several scientific databases using a broad yet focused range of keywords. This broad scope helps researchers identify trends in research, patterns of findings, and gaps in the literature more comprehensively.

f. Specific



A systematic literature review (SLR) is specific because it focuses on one or more specific research questions. This focus makes the review process more precise and efficient, and prevents it from straying into overly general topics. In practice, research questions are often structured using a specific framework, such as PICOC, to clarify and define the scope of the review. With the right focus, an SLR can provide a more in-depth, relevant, and useful analysis in addressing the research problems defined from the outset. In general, the main characteristics of a systematic review indicate that this method is conducted in a scientific, planned, measurable, and accountable manner.

A systematic review is systematic because it adheres to clear protocols from the very beginning of the research; it is transparent because all steps in the search for and selection of articles are openly described; and it is reproducible because these steps can be replicated by other researchers. Furthermore, a systematic review is objective because literature selection is based on predetermined criteria; comprehensive because it seeks to include as many relevant studies as possible; and focused because it is directed toward specific research questions. The combination of all these characteristics makes SLR a robust, low-bias method of literature review that is highly useful for mapping scientific developments and identifying research gaps.

4. Stages of a Systematic Literature Review

a) **Formulation of Research Questions** The first step in a systematic literature review (SLR) is to formulate a research question that is clear, focused, and relevant to the topic under examination. The research question serves as the primary foundation that guides the entire SLR process—from selecting search keywords and determining article selection criteria to directing data analysis and processing. Therefore, the research question must be carefully formulated so that it is neither too broad nor too narrow, ensuring that a sufficient body of literature is identified.

A well-formulated question helps researchers stay focused on the core issue and produces a review that is more incisive, systematic, and scientifically sound. In practice, research-questions can be formulated based on aspects such as methodology, subject matter, findings, challenges, or research trends within a specific field.

b) **Literature Review** After defining the research question, the next step is to conduct a comprehensive literature search in relevant scientific databases. The search aims to gather as many articles as possible that are relevant to the research topic so that the review results truly reflect current research progress. The search process is typically conducted using primary keywords based on the research focus, which are then combined with Boolean operators such as AND, OR, and NOT to broaden or narrow the search results. At this stage, researchers must also establish search criteria—such as publication year range, article language, publication type, and specific fields of study—to ensure the results remain relevant. An effective literature search must be conducted meticulously and documented, as the quality of the SLR results depends heavily on the comprehensiveness of the sources collected.

c) **Article Categorization** Literature searches generally yield a large number of articles, so screening is necessary to ensure that only relevant articles are analyzed further. Article screening is based on two types of criteria: inclusion criteria and exclusion criteria. Inclusion criteria are the requirements that must be met for an article to be included in the analysis; for example, it must align with the research topic, have been published within a specific timeframe, be available in full text, and come from a reputable scientific source. On the other hand, exclusion criteria are used to eliminate articles that are irrelevant, duplicates, not fully accessible, or of low quality. This screening stage is crucial because it helps researchers maintain the focus of their study and ensures that the analyzed articles are suitable as a basis for synthesis. With strict selection, the results of the SLR become more valid, accurate, and accountable.



d) Data collection After the articles have been selected during the screening stage, the researcher proceeds to data extraction, which involves gathering key information from each selected article. The data extracted is generally tailored to the research objectives and research questions that were previously formulated. The information typically extracted includes the author's name, year of publication, research objectives, methods used, research subjects or samples, main findings, and the strengths and weaknesses of the study. This data extraction process is usually organized in tabular form so that data from various articles can be systematically compared and easily analyzed. Effective data extraction helps researchers identify research patterns, compare findings across studies, and develop a more focused synthesis. This stage also serves as a crucial bridge between the article screening process and the formulation of final conclusions.

e) Data synthesis The final stage of SLR is data synthesis, which is the process of combining and analyzing the results of various selected studies to gain a more comprehensive understanding of the research topic. Data synthesis can be conducted qualitatively or quantitatively, depending on the type of data available and the research- ' objectives. In qualitative synthesis, researchers look for patterns, themes, similarities, differences, relationships among findings, and general trends across all studies. Meanwhile, quantitative synthesis can be conducted by calculating frequencies, percentages, and distributions, or through meta-analysis if the data from the existing studies support it. This synthesis stage is a crucial part of the SLR because it is at this stage that researchers make scientific interpretations and draw evidence-based conclusions. The results of the synthesis not only highlight what previous studies have found but also help identify research gaps, directions for scientific advancement, and opportunities for further research. (Wahono, n.d.) Overall, the steps in a systematic literature review (SLR) consist of formulating a research question, conducting a literature search, selecting articles, extracting data, and synthesizing data—all of which are carried out sequentially and are interrelated. Formulating the research question serves as the foundation for determining the focus of the study, while the literature search is conducted to gather relevant research from various academic sources. Next, articles are selected using inclusion and exclusion criteria to ensure that only appropriate studies are analyzed. Data from the selected articles are then extracted in a structured format to facilitate comparison and are subsequently synthesized to produce a comprehensive understanding. By following these steps, a systematic literature review (SLR) produces a systematic, objective, and academically robust study. (Lusianti et al., 2024)

A Advantages of SLR A Systematic Literature Review (SLR) has several advantages that make it superior to a conventional literature review. The main advantage of an SLR is its ability to provide a comprehensive, organized, and evidence-based overview of the research, as the entire process is carried out through clear steps, ranging from formulating research questions, conducting a literature search, selecting articles, to synthesizing the results. With this systematic approach, an SLR helps researchers gain a more complete understanding of developments in a topic and also facilitates the identification of patterns, trends, and the direction of ongoing research. (Makmur et al., 2025)

Additionally, an SLR offers the advantage of reducing bias in the selection of references. In conventional reviews, researchers often have greater freedom in selecting sources, which can lead to bias and the prioritization of certain articles based on personal preferences. In contrast, an SLR follows strict inclusion and exclusion criteria, making the selection process more objective and transparent. This advantage is crucial because it ensures the review's results are more scientifically accountable and provides a stronger foundation for drawing conclusions. Another advantage of a systematic literature review (SLR) is its ability to identify research gaps. Since an SLR synthesizes multiple studies simultaneously, researchers can identify which



aspects of a topic have been extensively studied and which remain under-researched. This is particularly useful for designing innovative research, formulating research questions more precisely, and determining the direction of future research. In this context, a systematic literature review (SLR) serves not only as a tool for summarizing the literature but also as a crucial foundation for building new academic-related contributions. SLRs also help researchers track research trends over time. By grouping articles by publication year, method, subject, or theme, researchers can observe changes in research focus, shifts in methodological approaches, and emerging trends in topics of growing interest. This type of information is particularly useful in rapidly evolving fields such as the social sciences, education, information technology, and management. In an academic context, SLR also strengthens the validity of an argument because the conclusions drawn are not based on just one or two sources, but rather on a synthesis of numerous relevant studies. Consequently, research arguments become stronger, more objective, and more convincing. This is why SLR is often used as a reference when drafting the research background, state-of-the-art review, or justification of the research's novelty. (Informasi et al., 2026)

Furthermore, SLR is particularly useful for topics with a large body of literature. In such cases, researchers do not need to read all the articles at random but can filter, group, and organize the information into a scientific summary that is easier to understand. Thus, SLR is not only efficient in terms of analysis but also helps researchers create a more organized and systematic knowledge map (Conference & Engineering, 2019)

A Systematic Literature Review (SLR) is designed to systematically identify, evaluate, and synthesize the findings of previous research in order to gain a comprehensive understanding of a research topic. This method also aims to minimize bias in the literature review through a transparent search process and enables other researchers to replicate the results. In addition, an SLR can reveal differences in research findings through a synthesis of various previous studies (Priharsari, 2022) .

5. Strengths and Limitations of a Systematic Literature Review (SLR)

a. Advantages of a Systematic Literature Review (SLR)

A Systematic Literature Review (SLR) has several advantages over a traditional literature review. First, an SLR employs systematic and structured procedures, allowing the process of searching for, selecting, and analyzing the literature to be conducted more objectively and transparently. The transparency of this process enables other researchers to follow the same procedures, thereby ensuring that the research findings can be replicated and verified.

Second, a systematic literature review (SLR) minimizes researcher bias and subjectivity because each stage of the research is conducted based on predefined criteria. Furthermore, by integrating various findings from previous research on a specific phenomenon, an SLR can produce a more comprehensive synthesis of knowledge (Brereton et al., 2007) . Third, an SLR helps researchers identify research gaps, trends, or patterns, and provides recommendations for future research. Therefore, this method is widely used as a foundation for developing conceptual frameworks and theories in various fields of science.

b. Limitations of a Systematic Literature Review (SLR)

In addition to its many advantages, SLR also has several limitations. One of them is that the process requires a significant amount of time, effort, and resources, as each stage must be carried out meticulously. SLR results also depend heavily on the quality of the articles used. If the selected studies are of low quality, the resulting synthesis may lead to inaccurate conclusions—a phenomenon known as “garbage in, garbage out.”

Another limitation is that the search methods used in an SLR may result in some relevant studies being overlooked or excluded from the selection. Consequently, the findings of the synthesis may not fully reflect all the research conducted on the topic (Boell &



CecezKecmanovic, 2014) . Although an SLR aims to minimize bias, researcher subjectivity can still arise, particularly during the data analysis, interpretation, and synthesis stages.

Conclusion

This Systematic Literature Review demonstrates that website-based information systems continue to play a significant role in supporting organizational digital transformation across various domains. The findings reveal that the Waterfall model remains the most frequently used software development methodology due to its structured and well-documented process, particularly for projects with stable requirements. Meanwhile, Agile, Prototype, Rapid Application Development (RAD), and Scrum have gained increasing attention because of their flexibility in accommodating changing user requirements and accelerating system development.

The review also shows that website-based information systems contribute to improved operational efficiency, accessibility, information management, and service quality. Nevertheless, no single development methodology is universally applicable. The effectiveness of a development method depends on project complexity, organizational objectives, available resources, and user involvement. Therefore, selecting an appropriate development methodology is a critical factor in ensuring successful system implementation.

Future research is recommended to explore hybrid software development approaches, strengthen information security aspects, evaluate long-term system performance, and investigate the integration of emerging technologies such as artificial intelligence, cloud computing, and big data analytics into website-based information systems.

References

- Achlison et al., 2025. (2025). Analysis of Implementation Models for Freight Tracking Using the Waterfall and Rapid Application Development Methods. *Teknik: Journal of Engineering and Informatics*, 5 (1), 90-97. <https://doi.org/10.51903/teknik.v5i1.758>
- Adham, M. F. (2024). *Analysis of Information System Implementation: A Literature Review*. 5(1), 264-275.
- Ahmad, M., & Kurnia, H. (2022). *Designing a Web-Based Sales Information System for Small and Medium-Sized Enterprises*. 2, 185-191.
- Alshamrani, A., & Bahattab, A. (2015). A Comparison of Three SDLC Models: Waterfall, Spiral, and Incremental/Iterative. *International Journal of Computer Science Issues (IJCSI)*, 12(1), 106.
- Boell, S. K., & Cecez-Kecmanovic, D. (2014). A hermeneutic approach for conducting literature reviews and literature searches. *Communications of the Association for Information Systems*, 34(1), 12.
- Brereton, P., Kitchenham, B. A., Budgen, D., Turner, M., & Khalil, M. (2007). Lessons from applying the systematic literature review process within the software engineering domain. *Journal of Systems and Software*, 80(4), 571-583.
- Conference, I., & Engineering, O. N. (2019). *SYSTEMATIC LITERATURE REVIEWS: AN INTRODUCTION*. ,
- Descania, D. Y. (2023). Application of the Prototype Method in the Development of an Online Queuing System at the Ministry of Agrarian Affairs and Spatial Planning/National Land Agency, Sukabumi Regency. *Indexia*, 5 (01), 1. <https://doi.org/10.30587/indexia.v5i01.5165>
- Dewa, S. B. A., & Azizah, N. L. (2024). *Design of a Web-Based School Information System Using the SDLC Method*. *Indonesian Journal of Applied Technology*, 1(2), 15. <https://doi.org/10.47134/ijat.v1i2.3053>



- Dwanoko, Y. S. (2016). Implementation of the Software Development Life Cycle (SDLC) in Software Application Development. *Journal of Information Technology*. <https://doi.org/10.36382/jti-tki.v7i2.219>
- Fachri, B., Rizal, C., & Supiyandi. (2024). *Application of the Waterfall Method in the Design of a Web-Based "Merdeka Belajar Kampus Merdeka" Information System*. *JUKTISI*, 2(3), 591-597.
DOI: 10.62712/juktisi.v2i3.147
- Feladi, I., IKIP PGRI Pontianak, Jl Ampera No. 88, (0561) 748219, Marlianto, F., & IKIP PGRI Pontianak, Jl Ampera No. 88, (0561) 748219. (n.d.). No Title. *DESIGN OF A WEB-BASED SCHOOL INFORMATION SYSTEM AT SMA WISUDA PONTIANAK, DESIGN*.
- Info, A. (2023). *Development of a Web-Based Library Information System at SMK*. 426-434.
- Information, P., Management, A., & Saing, D. (2026). *Systematic Literature Review*: 6(2), 29435-29442.
- Laurensa, A., Gultom, M., & Tendean, S. (2025). *Implementation of a Web-Based Registration Information System at TK ABA Kampung Padang*. 3(3), 56-61.
- Lusianti, E. F., Tadris, P., & Indonesia, B. (2024). *Systematic Literature Review (SLR): Implementation of Digital-Based Learning Media in Indonesian Language Instruction*. 4214(1), 85-101.
- Makmur, N. I., Sultan, M. I., Karnay, S., Insights, C., & Pelanggan, L. (2025). *SYSTEMATIC LITERATURE REVIEW: THE IMPACT OF BIG DATA ANALYSIS ON ENHANCING CONSUMER AWARENESS AND LOYALTY AT*. 10(2), 436-451.
- Marissa Utami. (2022). *The Scrum Method*. 5(2), 113-117.
- Nagara, B. S., Oetari, D., Apriliani, Z., & Sutabri, T. (2023). *Application of the Waterfall SDLC (System Development Life Cycle) Method in the Design of an Android-Based Online Shopping Application at CV Widi Agro*. *INTECOMS*. DOI: [10.31539/intecom.v6i2.8244](https://doi.org/10.31539/intecom.v6i2.8244)
- Ni Wayan Purnawati, B.S., M.S., I Nyoman Alit Arsana, M.S., Ita Arfyanti, B.S. in Computer Science, M.S., Iqbal Ramadhani Mukhlis, B.S. in Computer Science, M.K., Sulistyowati, B.S., M.K., Fely Dany Prasetya, B.S. in Computer Science, M.T., Iwan Tri Bowo, B.S. in Computer Science, M.T., Rahman Abdillah, M.T., Christian Tonyjanto, B.S. in Computer Science, M.P., Anisa Putri, B.S. in Business Administration, M., & Loso Judijanto, B.S. in Natural Sciences, M.M., M.S. (n.d.). *INFORMATION SYSTEMS (Theory and Implementation of Information Systems in Various Fields)*.
- No, V., Informatika, P. S., & Hazairin, U. P. (2023). *Implementation of a Web-Based Information System for Document Management and Archiving by Reni Kurniah*
Introduction: Coupled with rapid technological advancements, information technology has become one of the most important and essential elements today. This is because information technology simplifies and assists tasks that were previously manual by making them more computerized, thereby making work more effective and efficient.[1] The rapid development of information technology requires institutions and organizations to have quick access to information. Almost all activities carried out require information technology; therefore, information technology has become crucial in supporting administrative activities as well as functions within other work units. [2] Archives are a source of information that serve as a record of various activities; these documents are stored as systematically as possible in designated locations to facilitate the retrieval process when needed. [3] With the large volume of records being created, the issues that must be addressed become increasingly complex, and there is a growing need for accurate and timely information. If handling these records remains inefficient and is done only



manually, the system should be converted to a computerized one. This is because computers are the ideal tool for processing routine data.[4] The use of computers in information systems is inseparable from the provision of software and hardware with processing speeds adequate for the workload, as well as the provision of brainware, users, and human resources to operate the system, thereby facilitating system improvements. [5]. Based on current research at Prof. Dr. Hazairin, SH University, document archiving is still carried out conventionally—that is, documents are stored only on computers and then archived in filing cabinets. This makes the document retrieval process time-consuming and prone to the loss of. 6(2), 258-267.

- Paksi, A. B., Hafidhoh, N., & Bimonugroho, S. K. (2023). *A Comparison of Software Development Models for Final Projects in Vocational Programs*. 14(1), 70-79.
- Pambudi, R., & Dwi, O. (2020). Systematic Literature Review: Analysis of Agile Models in Information System Development. *Indexia: Informatics and ...*, 01(2018), 1-8.
- Perdana, M. A. K. (2018). Development of a REST API for Storage Services Using the Rapid Application Development Method (Case Study of PT. XYZ). *InfoTekJar (National Journal of Informatics and Network Technology)*, 3(1), 100-104.
- Pricillia, T., & Zulfachmi. (2021). Comparison of Software Development Methods (Waterfall, Prototype, RAD). *Jurnal Bangkit Indonesia*, 10(1), 6-12. <https://doi.org/10.52771/bangkitindonesia.v10i1.153>
- Priharsari, D. (2022). *Systematic Literature Review in the Field of Information Systems and Computer Science*. 9 (2), 263-268. <https://doi.org/10.25126/jtiik.202293884>
- Pujiantoro, J. E., Saputra, A. N., & Leksono, A. M. (2023). *Design of a Web-Based Village Information System (Sidesaka) in Karangsalam Village, Kemranjen Subdistrict, Banyumas Regency*. *. 3
- Putri, F. R., Suharso, A., Informatika, P. S., Komputer, F. I., & Karawang, U. S. (2023). *Systematic Literature Review on the Use of Information System Development Methodologies*. 1861(9), 377-382.
- Raharjo, B. (2009). The Implications of Information Technology and the Internet on Education, Business, and Government: Is Indonesia Ready? Retrieved from: www.budi.insan.co.id/articles/Riau-IT.doc (September 30, 2005).
- Rahmi, E., et al. (2023). *Analysis of Website-Based Information System Development Methods: A Systematic Literature Review*. 7, 821-834.
- Rahmi, R., Perdana Sari, R., & Suhatman, R. (2016). The Extreme Programming Methodology Approach in E-Commerce Applications (A Case Study of a Telecommunications Equipment Sales Information System). *Journal of Applied Computing*, 2(2), 83-92.
- Ramadhan, J. A., Haniva, D. T., & Suharso, A. (2023). *Systematic Literature Review on the Use of Waterfall, Agile, and Hybrid Information System Development Methodologies*. 07, 36-42.
- Ramadhan, R. A., et al. (2023). *Design of a Web-Based Intellectual Property Marketplace Application Using the Waterfall Method*. REMIK, 7(1). DOI: 10.33395/remik.v7i1.11989
- Saputri, Y. N., Sudiati, L. E., & Haryani, N. (2023). BUMDes INFORMATION SYSTEM USING RAD OR PROTOTYPE METHOD? (COMPARISON STUDY BETWEEN RAD AND PROTOTYPE). *Journal of Social, Science, and Education*, 6(2), 2-9.
- Sembako, T., Amanah, S., Rayhan, R., & Fajri, I. N. (2025). *JTIM: Journal of Information Technology and Multimedia Design and Implementation of a Web-Based Information System—*. 7(1), 91-106.



- Septiani, M., Aulianita, R., Sofica, V., & Hasan, N. (2021). *A Website-Based Wooden Window Frame Sales Information System*. 9(2), 103-107.
- Silitonga et al., 2021. (2021). Implementation of the System Development Life Cycle in the Design and Development of a Web-Based Patient Registration System. *Kaputama Information Systems Journal (JSIK)*, 5(2).
- Sintaro, S. (2022). *Modeling a Web-Based Purchasing and Sales Information System*. 1, 25-32.
- Vafky Ideal, M. A., Rasyid, M., & Yuda, F. (2024). *Design of a Field Work Practice Monitoring Information System Using the Waterfall Method*. *KomtekInfo Journal*, 11(4), 425-435. DOI: 10.35134/komtekinfo.v11i4.595
- Wahono, R. S. (n.d.). *Systematic Literature Review (SLR)*.
- Yudha, B., Sutrisno, D., & Butar-Butar, F. T. S. (2023). *Application of the Waterfall Method in a Payroll Information System for Permanent Employees*. *REMIK*, 7(1), 134-141. DOI: 10.33395/remik.v7i1.11969