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Analysis of Website-Based Information System Development Methods

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Abstract *- Currently the development of information technology is very fast. Information technology is needed in human life. One of the functions of information system technology is to help or encourage human work to run more effectively and efficiently. Information system development has many methods and various platforms. Platforms that can be used in the development of information systems are mobile, web or desktop based platforms. This study aims to determine a website-based information system development model, and the data is obtained through relevant literature from 2016 to 2020. The method used in this study is the System Literature Review (SLR). The SLR method is used to identify, review, evaluate and interpret all available research in the subject area of the phenomenon of interest, as well as specific related research questions. Using the SLR method, journal articles can be systematically reviewed and identified, and predetermined steps or procedures can be followed in each process. The results of this study indicate that the main method used in the development of website-based information systems, and the advantages and disadvantages of developing website-based information systems used in this study.*

Keywords*: Information System Development, Systematic Literatur Review (SLR), Website.*

INTRODUCTION

Information systems have a very important role, the faster the development of a company or organization, the information systems also have an increasingly important role. The demand for an increasingly better information system is the result of the demands of company development, technological developments, government policies, changes in procedures and demands for information needs. Information system development is often referred to as the system development process. Information system development is defined as an activity to produce a computer-based information system to solve organizational problems or take advantage of opportunities that arise. System development can mean compiling a new system to replace the old system as a whole or improving an existing system, this is done because the previous system had problems, inefficient operations, and so on. The development of information systems can not be separated from the System Development Life Cycle or better known as SDLC is a general methodology used to develop information systems. SDLC consists of from several phases starting from the planning, analysis, design, implementation to system maintenance phases. This SDLC concept underlies various types of software development models to form a framework for planning and controlling the manufacture of information systems. SDLC is the process of developing or modifying a software system by using the models and methodologies used by people to develop previous software systems (based on best practices or methods that have been well tested). SDLC has several models in implementing the stages of the process, including the Sequential Model or Waterfall, Parallel Model, Iterative Model, Prototyping Model, RAD (Rapid Application Development) Model, Spiral Model, VShaped Model and Agile Development. A web-based information system is a facility in a computerized system that has been equipped with features and is designed in such a way as to suit the needs to be used for inputting certain data which aims to simplify, speed up and accurate data that has been processed. Website is a collection of components consisting of text, images, animated sound so that it is an interesting and highly sought-after information medium to be used as a medium for sharing information. Website technology processes data into information by identifying, collecting, managing and providing it can be accessed together.

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RESEARCH METHOD

The method used in this study is the search process method used to obtain or search for relevant sources to answer the Research Question (RQ), and other related references using the search engine (Mozilla firefox) with the site address https://scholar.google .com. and http://garuda.ristekdikti.go.id. In conducting SLR, strategies and methods are needed in the search for research on related research. The first stage is the search for related research based on search keywords. The keywords to search for literature in this research are "Information System Development Methods" & "Website-based Information System Development" and "Information System Development" & "Website-Based Applications". These keywords are then entered into the search feature available on Google Scholar, and select the year option.

RESULTS AND DISCUSSION

Research Systematic Literature Review (SLR) to determine the methods used in the development of a website-based information system. The data used in this study is in the 2016–2020 timeframe to keep the literature up-to-date and up-to-date for review. The data was obtained through the sites https://scholar.google.com and http://garuda.ristekdikti.go.id. The data used is only related to the website-based information system development method.

1. What is the most frequently used website-based information system development method in 2016-2020?

Table 1 shows the results of grouping methods that answer Question 1.

No	Metode Pengembangan Sistem Informasi	Total
1	Metode Waterfall	31
2	Metode Rapid Application Development (RAD)	6
3	Metode Rational Inified Process (RUP)	6
4	Metode Prototype	5
5	Metode Research and Development (R&D)	1
6	Metode Web Development Life Cycle (WDLC)	1

Based on table 2, the most frequently used method in the development of information systems (2016–2020) is the waterfall. Waterfall is one of the Software Development Life Cycle (SDLC) where software development activities start from specification, development, validation, and evolution and then divide it into process phases such as requirements specification, software design, implementation, testing, and others. The advantages of the Waterfall model are that it is easy to understand, milestones are well understood, requirements will be stable, and provide structure for inexperienced staff.

Waterfall has five stages, namely:

1. Requirements analysis and definition, is the process of analyzing user needs to find out the objectives, limitations and services of a system. In this stage the requirements are defined in detail and used as system specifications,
2. System and software design, is a system design process based on needs by building the entire system architecture. Software design involves identifying and describing the abstractions of software systems and their relationships,
3. Implementation and unit testing, at this stage the software design is implemented as a program unit and then tested using a unit testing strategy,
4. Integration and system testing, at this stage program units are integrated with each other so that functions can run and then tested using an integration testing strategy,

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5. Operation and maintenance, in this stage the system is treated if errors are found, or increase the implementation unit and improve system services.

2. What are the advantages and disadvantages of developing a website-based information system based on the methods that have been obtained?

Table 2 Advantages and Disadvantages of developing information systems.

Metode	Kelebihan	Kekurangan
Metode Rational Unified Process (RUP)	1) Provide easy access to basic knowledge for team members. 2) Provide instructions on how to use UML effectively. 3) Support the iterative process in software development. 4) Allows for additional additions to the process. 5) It is possible to systematically control the changes that occur in the software during the development process 6) Allow to run test	1) has a high technical risk. 2) Requires a lot of manpower to complete a project on a large scale. 3) If there is a change in the middle of the work then a new contract must be made between the developer and the customer
Metode Prototype	1) Accurate identification requirements because evaluations are carried out regularly and get input from the project owner on the prototypes produced, 2) Improved user experience, due to continuous testing and evaluation of prototypes, 3) Errors and redundancies can be minimized due to a good identification process for prototypes	1) Every evaluation and input on the prototype will require adjustments to the prototype that appearance. And each adjustment will increase the complexity of the developed system, 2) Provide additional burden to the programmer, 3) There is a need for additional costs related to the manufacture of the prototype and adjustments can be made to the prototype version as needed, until the prototype can be approved by the project owner
Metode Research and Development (R&D)	1) Able to cope with urgent real needs. (real needs in the here-and-now) through developing a solution or a problem by generating knowledge that can be used in the future. 2) Able to produce a product or model that has a high validation value, because it goes through a series of field trials and expert validation. 3) Encouraging a continuous process of product or model innovation so that it is hoped that there will always be models or products that are always actual in accordance with the times. 4) Serves as a liaison between theoretical and field research	1) The research process requires a relatively long time, because the procedures that must be taken are more detailed and regular. 2) Cannot be generalized as a whole because R&D research is aimed at problem solving and is made based on a (specific) sample. 3) Requires substantial funds and resources

JISMA
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Metode Waterfall	1) Easy to manage because almost all requirements have been identified and documented, 2) The stages are linearly sequential, complete identification and documentation, making the process easy to understand by the entire team involved or the project owner	1) Stages that are sequentially linear are not possible to return to the next stage, 2) Not flexible to changing needs that occur in the system development stage, 3) Almost no fault tolerance, especially at the planning and design stages
Metode Rapid Application Development (RAD)	1) More effective than the waterfall/ linear sequence model development in producing a system that meets the immediate needs of the customer. 2) Suitable for projects that require a short time. so that the development time becomes shorter and more efficient	1) The RAD model requires development and the customer to be committed to the rapid-fire activities necessary to complete a system, in a very shortened time frame. If the commitment is not there, the RAD project will fail. 2) Not all applications are suitable for RAD, if the system can't be modulated regularly, the development of critical components in RAD will be very problematic. 3) RAD is not suitable for systems that have a high risk.

CONCLUSION

Based on the results of the research that has been carried out, several conclusions can be drawn that refer to the results of RQ1 that the researchers conducted on the journal literature published from 2016-2020, the most widely used website-based information system development method is the waterfall method. Based on the results of RQ2 conducted on the journal literature, the information system development method consisting of the waterfall method, prototype, RAD, RUP, R&D and WDLC shows the advantages and disadvantages of each development method.

REFERENCES

Effendi, M. R., & Saputra, J. (2022). Design and Build an Employee Leave Application System. *Journal of Information Systems and Management (JISMA)*, *1*(4), 42-53.

Hermansyah, R., & Asbari, M. (2022). Edifying In The Industrial Revolution 4.0 With The Role Of Islamic Education. *Journal of Information Systems and Management (JISMA)*, *1*(5), 7-11.

Indra, F., Juliana, J., Hubner, I., & Sitorus, N. B. (2022). Development Of Gastronomic Tourism Potential In Pontianak West Kalimantan. *Journal of Information Systems and Management (JISMA)*, *1*(5), 28-42.

Jasin, M. (2022). The Role of Social Media Marketing and Electronic Word of Mouth on Brand Image and Purchase Intention of SMEs Product. *Journal of Information Systems and Management (JISMA)*, *1*(4), 54-62.

Jasin, M. (2022). How The Role of online and viral marketing and competitiveness ability on business performance of SMEs. *Journal of Information Systems and Management (JISMA)*, *1*(2), 28-35.

Lusita, Afrisanti 2011. Smart Books Become Creative, Inspirational, and Innovative Teachers. Yogyakarta: Alaska.

Novitasari, D. (2022). Hospital Quality Service and Patient Satisfaction: How The Role of Service Excellent and Service Quality?. *Journal of Information Systems and Management (JISMA)*, *1*(1), 29-36.

Novitasari, D. (2022). SMEs E-commerce Buying Intention: How the Effect of Perceived Value, Service Quality, Online Customer Review, Digital Marketing, and Influencer Marketing. *Journal of Information Systems and Management (JISMA)*, *1*(5), 61-69.

Patmawati, S., Dewi, V. M., & Asbari, M. (2023). THE EFFECT OF SHORT-TERM AND LONG-TERM LEARNING IN QUALITY MANAGEMENT AND INNOVATION. *Journal of Information Systems and Management (JISMA)*, *2*(1), 21-26.

Purwanto, A. (2022). WHAT IS THE ROLE OF CUSTOMER BEHAVIOR FOR ELECTRONIC E-COMMERCE AND MODERN MARKET VISIT INTENTION? *Journal of Information Systems and Management (JISMA)*, *1*(6), 46-57.

Rusydie, Salman2011. *Prinsip-Prinsip Manajemen Kelas, Tuntunan Kreatif dan Inovatif* Yogyakarta: Diva Press.

Sardinian A.M 2011. Teaching and Learning Interaction & Motivation.Jakarta: PT Raja Grafindo Persada.

Suyanto dan Asep Djihad 2013. *Bagaimana Menjadi Calon Guru dan Guru Profesional*. Yogyakarta: Multi Pressindo.

Suyanto and Asep Djihad 2013. How to Become a Prospective Teacher and Professional Teacher. Yogyakarta: Multi Pressindo.

Wahyudin,Yudin. ANALISIS METODE PENGEMBANGAN SISTEM INFORMASI BERBASIS WEBSITE: A LITERATUR REVIEW. https://media.neliti.com/media/publications/359724-analisis-metode-pengembangan-sistem-info-16801afb.pdf.18 Oktober 2022