

Evaluation of Hospital Management Information System (SIMRS) Using Hot-Fit Method in RSU Royal Prima on 2021

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Abstract— An information technology is a facility that has a very important role in improving the quality and quality of services, Hospital Management Information system is an information system that processes service delivery activities in hospitals. Hospitals must run SIMRS properly and function properly. The purpose of this study was to evaluate the hospital management information system (SIMRS) using the HOT-FIT method at RSU Royal Prima Medan in 2021. This type of research used a mixed method. The sample in this study amounted to 140 samples. Data analysis used two software, namely SPSS and Lisler where the analysis used was univariate and bivariate analysis. The results of the study show there were 106 respondents who said SIMRS was useful, and 34 people said it was not useful, system quality, information quality, service quality, system development, system use, user satisfaction and organizational environment structure respectively. effective and efficient in carrying out SIMRS at RSU Royal Prima Medan in 2021.

Keywords— SIMRS, HOT-Fit, Hospital Management.

I. INTRODUCTION

Hospitals are institutions that provide inpatient services, medical services, and ongoing nursing services for diagnosis and providing treatment carried out by organized medical staff (Supriyono, 2016). The function of the hospital is as a service provider that is curative and rehabilitative as well as improving individual health as well as organizing education and training of human resources to increase capacity in the provision of health services (Supriyono, 2016).

Information technology is a facility that has a very important role in improving the quality and quality of services (Waluyo, 2017). In the world of health, information technology supports the hospital management process to be more effective and efficient. Hospitals implement an information system to support transaction processes related to patients, employees, and medical staff (Fitri et al., 2020).

As a complex organization, hospitals need complete and accurate information system support to optimize services. Information is an important asset that needs to be managed optimally to support decision-making (Larinse, 2015). The application of information systems in hospitals is expected to encourage hospitals to carry out service activities more productively, quickly, easily, accurately, integrated, safely, and efficiently (Manik et al., 2016).

Currently, many hospitals are not aware of the importance of processing and compiling data properly which can cause hospital services to be ineffective. The hospital staff is still not familiar with making decisions based on the results of data and information processing. (Setyawan, 2016)

In the implementation of implementation activities, hospitals are required to record and report hospitals. There are still health services that use conventional methods as a way to process data and information, namely recording transactions and purchasing goods in a book. This activity is certainly not

easy because it requires accuracy, and energy, and is time-consuming (Manik et al., 2016).

Based on the problems that occur in the recording and reporting process, the government makes a policy that can make it easier to record and report. This policy is implemented with an application made in the form of a Hospital Management Information System (SIMRS). Every hospital is required to organize SIMRS as stated in the Regulation of the Minister of Health of the Republic of Indonesia Number 82 of 2013 concerning Hospital Management Information Systems (Annisa, 2020).

Hospital Management Information System is an information system that processes service delivery activities in hospitals. In Law Number 82 of 2013, it is explained that processing service activities in hospitals can be done in the form of a network of coordination, reporting, and administrative procedures to obtain precise and accurate information and are part of the Health Information System (SIK). The government targets all hospitals to have SIMRS (Annisa, 2020).

Hospitals must run SIMRS properly and function properly. If SIMRS has an error, it will have a bad impact on hospital services. For example, there are often delays in sending reports (Dien, 2018). The delay in sending the report requires an evaluation to find out the cause of the delay. Information system evaluation is an effort made to find out the actual state of an information system implementation (Surya, 2019).

The application of the Hospital Management Information System (SIMRS) is very important to integrate all the information generated in the service process. SIMS can encourage increased efficiency and effectiveness of services in hospitals along with the smooth flow of information originating from hospital operational activities (Manik et al., 2016).

The Hospital Management Information System (SIMRS) functions to control service quality, quality control, productivity assessment, service simplification, benefits analysis and needs estimation, clinical research, education, and program planning and evaluation (Suproyono, 2017).

Research conducted by Afonsom (2017) regarding Analysis of Hospital Management Information System Implementation at TK III Hospital 4 04.06.03 Dr. R. Soetarto Yogyakarta stated that the compilation of information that was recapitulated manually resulted in delays in the presentation of information and was less reliable. This proves the importance of using SIMRS to improve the quality of accurate and accountable information (Afonsom, 2017).

Research conducted by Surya (2018) regarding the Evaluation of the Utilization of Hospital Management Information Systems (SIMS) at the Padang Panjang City Hospital stated that the implementation of SIMRS at the Padang Panjang City Hospital still has shortcomings and requires improvements both in terms of system quality components, information quality, and satisfaction. user. This causes the SIMRS to not be integrated into all parts of the hospital (Surya, 2019).

The problems that occur at RSU Royal Prima Medan are related to the three core components of the information system, namely people, organization, and technology. Lack of human resources related to the human component, SIMRS management structure that is not related to organizational components, and insufficient supporting tools related to technology. So, the evaluation model that is suitable to be used in the SIMRS evaluation at RSU Royal Prima Medan is the HOT-FIT Evaluation Model.

Because, this model can be used for evaluating health information systems that lead to the core components in information systems, namely Human (human), Organization (organization), and Technology (technology) (Annisa, 2020).

II. LITERATURE REVIEW

2.1. Definition of Information System

The information system is a stage of data collection activities which will later be processed into useful information for those who receive it, the information system is a series of formal procedures where data is collected, processed into information and distributed to users (Faizal & Putri, 2017).

Information systems have several supporting components. This was also conveyed by John Burch and Gary Grudnitski in (Fauzi, 2017) who suggested that information systems consist of components called building blocks, namely:

1. Input Block

Input represents data that enters the information system. Input here includes methods and media for capturing data to be entered which can be in the form of basic documents.

2. Block Model

This block consists of a combination of procedures, logic and mathematical models that will manipulate the input data and data stored in the database in a certain way to produce the desired output.

3. Output Block

The product of an information system is the output which is quality information that is useful for all system users and is the result of the product of an information system.

4. Technology Block

Technology is a "toolbox" in information systems. This technology block is a block that accepts input, runs the model, stores and accesses data, generates and sends output and helps control the overall system.

5. Base Block

Database data is a collection of data that are interconnected with each other, stored on computer hardware and used by software to manipulate it.

6. Control Block

Control block is a block that is used to reduce the occurrence of threats or risks to information systems.

2.2. Definition of Management

According to Afandi (2018) Management is working with people to achieve organizational goals by implementing the functions of planning (planning), organizing (organizing), preparation of personnel or staffing (staffing), direction and leadership (leading), and supervision (controlling). Management is a typical process, which consists of planning, organizing, moving, and controlling actions that are carried out to determine and achieve predetermined goals through the use of human resources and other resources.

2.3 Hospital

Hospital according to the Regulation of the Minister of Health of the Republic of Indonesia Number 4 of 2018 is a health service institution that provides complete individual health services that provide inpatient, outpatient, and emergency services. The hospital is an organization carried out by professional medical personnel who are well organized from medical infrastructure, continuous nursing care, diagnosis and treatment of diseases suffered by patients (Supartiningsih, 2017).

2.4 Hospital Duties and Functions

According to (Rikomah, 2017) hospitals have duties and functions based on law no. 44 of 2009 concerning hospitals. The task of the hospital is to carry out health service efforts in an efficient and effective manner by prioritizing healing and recovery which is carried out in a harmonious and integrated manner with improvement and prevention as well as the implementation of referral efforts.

Meanwhile, the hospital functions are:

1. Implementation of medical treatment and health recovery services in accordance with hospital service standards.
2. Maintenance and improvement of individual health through complete second and third level health services according to medical needs.
3. Education and training services for human resources in the context of increasing capacity in the provision of health services.
4. Organizing research and development as well as screening technology in the health sector in the context of improving health services by taking into account the ethics of science in the health sector.

2.5 Definition of Hospital Management Information System (SIMRS)

According to Widyaiswara (2016), MEA (ASEAN Economic Community) is a market realization based on the agreement of 10 ASEAN member countries in 2007, MEA (ASEAN Economic Community) was implemented in Indonesia in 2015. This makes free trade oblige the health sector, especially hospitals to improve competitiveness by providing the best possible service to customers or patients and presenting accurate reports for decision makers in the future. In order to overcome obstacles in health services in hospitals, the existence of

"Hospital Management Information System" is very much needed, as one of the management strategies in improving the quality of health services and winning business competition.

Hospital Management Information System (SIMRS) is currently the main resource, which has added value and has an important role for hospitals to be able to provide the best service. In the construction of SIMRS, it is necessary to consider from various points of view. The following are factors that need to be considered (Widyaiswara 2016), namely:

- Patient needs, the system is expected to be able to support fast, comfortable and quality services.
- Hospital management needs, the system is able to manage transactions that are accurate, efficient and fast so that medical service reports can be sent on time.
- Developer capabilities, a system analyst is needed as a liaison between the developer and the hospital to develop a system that is suitable for the hospital.

2.6 The Role of Hospital Management Information Systems

Hospital management without the help of the Hospital Management Information System resulted in the following things (Widyaiswara 2016), namely:

- Data Redundancy, recording the same medical data can occur repeatedly, causing data duplication and this results in swelling of data storage capacity. The service becomes slow because the data retrieving process is slow due to the large number of stacks of files.
- Unintegrated Data, unintegrated data storage and management causes the data to be out of sync, the information in each section has different assumptions according to the needs of each unit/installation.
- Out of date Information, because the preparation of information must be recapitulated manually, the presentation of information becomes too late and the truth is less reliable. Meanwhile, hospitals need quality information.

2.7 Evaluation of Information System Success

Evaluation is a process of obtaining information and understanding and communicating the results of the information to decision makers (Sukardi, 2016). The objects of evaluation include program policies, program implementation, and program effectiveness (Sukardi, 2016).

According to Sukardi (2016), there are several evaluation objectives including:

- Measuring the impact of the program on the community.

- Assess whether the program has been implemented as planned.
- Measuring whether the implementation of the program is in accordance with the standards.
- Program evaluation can identify and determine which dimensions of the program are working and which are not.
- Program staff development.
- Meet the provisions of the law.
- Program accreditation.
- Measuring cost effective and cost efficiency.
- Make decisions about the program.
- Accountability.
- Provide feedback to leadership and programs.
- Develop evaluation theory and evaluation research

The following are the objectives of information system evaluation according to Sukardi (2016), namely:

- Determine required improvements in a single individual product or team.
- Confirm parts of a product where improvement is not required or is required.
- Achieve better, at least more uniform and more predictable engineering quality work and to make technical performance more manageable.

III. METHOD OF RESEARCH

This type of research uses a combination research method (mix method). Mix method is a research method that combines or combines quantitative and qualitative methods in one study in order to obtain comprehensive, valid, reliable, and objective data (Sugiyono, 2017).

In general, this research was conducted using a quantitative approach which aims to determine the success rate of the Hospital Management Information System (SIMRS) and to test a number of hypotheses regarding the relationship between the success rate of the system and the factors that influence it.

In particular, this research phase also applies quantitative methods, techniques, and tools as indicated by the research procedures. The researcher also conducted unstructured interviews with several respondents who were SIMRS users, the results of these interviews were intended as additional data in the discussion of this study. Related procedures, techniques and research tools are described in the following sub-chapters in detail.

TABLE 1. Definition of Operational Variables

Variable	Variable Definition	Indicator
Human Factor(HF)	Circumstances in which humans/individuals/society influence user behavior	1. System Development 2. System Use 3. User Statistics
Technology Factor(TF)	Circumstances related to technology that may affect use	1. Information Quality 2. System Quality 3. Service Quality
Organization Factor(OF)	Circumstances in which the organization influences user behavior	1. Structure and Environment
Net Benefits(NB)	Benefits of using the system either individually or as a whole organization	1. Performance 2. Productivity 3. Workload

The survey was conducted by distributing questionnaires directly. Questionnaires were distributed to SIMRS users at RSU Royal Prima Medan both doctors, nurses, nutritionists, admins, etc. The questionnaire was made with the aim of knowing the level of success of SIMRS at RSU Royal Prima Medan and what factors affect the success rate of SIMRS where the list of questions refers to the Human, Organization and Technology (HOT) Fit model and uses a Likert scale for the rating scale. The distribution of questionnaires in this study was carried out by asking questions in the form of a google form, because during the current pandemic the thing that needs to be avoided is a lot of interaction with other people, to prevent the spread of the Covid-19 virus,

According to Sugiyono (2017), population is a generalization area consisting of objects or subjects that are certain quantities and characteristics set by researchers to be studied and then conclusions are drawn. The population in this study are all users of the Hospital Management Information System (SIMRS) RSU Royal Prima Medan. consisting of active employees from each division who interact with the system.

The definition of the sample according to Sugiyono (2017) is part of the number and characteristics possessed by the population, samples taken from the population must be truly representative. The sample used in this study were active employees from each division who interacted with the Hospital Management Information System (SIMRS) RSU Royal Prima Medan.

The following is a table for determining the sample in this study based on the use of SIMRS at RSU Royal Prima Medan.

TABLE 2. Determination of the Number of Samples

Part	Total Population	Sample Used
Customer Service	22 People	10 people
IT	6 people	6 people
Pharmacy	37 People	24 people
Nurse	367 People	100 people
Total	432 People	140 people

IV. ANALYZE AND RESULT

4.1 Overview of Research Sites

Royal Prima Hospital Medan is one of the largest private hospitals and will become a referral center for the community, especially the city of Medan and the people of North Sumatra in general. A proud moment, on 17 May 2011, the Deputy Minister of National Education of the Republic of Indonesia, Prof. Dr. Fasli Jalal, PhD. laying the groundwork for the construction of the Royal Prima Hospital. On February 14, 2013, the Head of the Health Office of North Sumatra Province issued a Temporary Operational Permit to RS Royal Prima Medan No. 440.442/1641/II/YEAR 2014. On February 16, 2014 RS. Royal Prima Medan was inaugurated by the Deputy Governor of North Sumatra Province, Ir. H. Tengku Erry Nuradi, M. Si with a Permanent Operational Permit from the North Sumatra Provincial Health Office signed by the Head of the North Sumatra Provincial Health Office, dr. Siti Hatati Surjantini, M.Kes.

4.2. Vision and Mission of Royal Prima Hospital Medan

4.2.1. Vision

The vision of the Royal Prima Hospital in Medan is to become a Leading Hospital in the fields of health services, education and research and health development by prioritizing the interests of public health.

4.2.2. Mission

The mission of the Royal Prima Hospital Medan is:

1. Organizing quality and professional plenary health services based on evidence and scientific research
2. Continuously improve the competence of human resources in accordance with the development of science and technology in medicine, dentistry and other health
3. Improving the quality and quantity of health service facilities/infrastructure, education and research in accordance with technological developments and community needs
4. Carry out a comprehensive and integrated research and evidence-based education function in the health sector
5. Creating a work environment that synergizes and upholds human and religious values as well as improves the welfare of the parties concerned
6. Establish partnerships with various parties in an effort to strengthen the role of hospitals in health services and education
7. Carry out service to the interests of public health

4.3 Distribution of Respondents Characteristics (Univariate Test)

The frequency distribution according to the characteristics of the respondents is based on the respondent's information data which includes the respondent's age, education and length of service.

4.3.1. Distribution of Respondents' Characteristics Based on Respondent's Age

TABLE 3. Characteristics of Respondents by Age

Age	n	Percentage (%)
20-30 Years	39	27.9
31-40 Years	100	71.4
> 40 Years	1	7
Total	140	100

Source: Data Processed 2022

Tables 3 describes the characteristics of respondents by age, respondents aged 20-30 years were 39 respondents or 27.9%, respondents aged 31-40 years were 100 respondents with a percentage of 71.4% and for respondents aged > 40 years as many as 1 respondent with a percentage of 7% of the total respondents totaling 140 respondents.

4.3.2. Distribution of Respondents' Characteristics Based on Respondent's Gender

TABLE 4. Characteristics of Respondents by Gender

Gender	n	Percentage (%)
Man	62	44.3
Woman	78	55.7
Total	140	100

Source: Data Processed 2022

Table 4 describes the characteristics of respondents by gender, respondents with male sex as many as 62 respondents with a percentage of 44.3%, respondents with female sex as many as 78 respondents with a percentage of 55.7% of the total 140 respondents. respondents.

The results showed that there were 111 respondents who answered the use of a good system with a percentage of 79.3%, and 29 respondents who answered that the use of the system was not good with a percentage of 20.7% of the total 140 respondents. The p-value of the relationship between the use of the system on the effectiveness and efficiency of the use of SIMRS at RSU Royal Prima Medan is $0.000 < 0.05$, which means that the use of the system is effective and efficient in running SIMRS at RSU Royal Prima Medan in 2021. Yusof et al. (2016) stated that the human component assesses information systems in terms of system use on the frequency and breadth of information system functions and investigations. System use also relates to who uses it (who uses it).

The relationship between user satisfaction on the effectiveness and efficiency of using SIMRS at RSU Royal Prima Medan in 2021, the results of the study show that 119 respondents who answered good user satisfaction with a percentage of 85%, and 21 respondents who answered poor user satisfaction with a percentage of 15% of the total of all 140 respondents. The p-value of the relationship between user satisfaction on the effectiveness and efficiency of using SIMRS at RSU Royal Prima Medan is $0.000 < 0.05$, which means user satisfaction is effective and efficient in running SIMRS at RSU Royal Prima Medan in 2021. In this result it can be seen that the majority respondents are satisfied with SIMRS which currently exists at RSU Royal Prima Medan, where with the SIMRS it can lighten the workload they do as well as if there is data that has been previously needed they can easily find the data in the SIMRS, different from using a manual system where the possibility of the data needed is not known where it is and its position when needed. In addition, with the SIMRS, it can also reach all information in one system which is definitely more effective and efficient in its use.

User satisfaction on the system can be related to the perspective of benefits and user attitudes towards information systems which are influenced by personal characteristics. There are additions to the framework from previous frameworks, namely including system development variables (System Development) into it (Yusof et al., 2016). Similar research states that the level of satisfaction directly affects the use of the system. If SIMRS is satisfactory, the level of use will be more frequent. User satisfaction is a factor that encourages the use of the system and affects the user's perception of the benefits obtained (Supriyono, 2017).

The relationship between the organizational environment structure on the effectiveness and efficiency of using SIMRS at RSU Royal Prima Medan in 2021, the results of the study show that respondents who answered the organizational environment structure were good as many as 120 respondents with a percentage of 85.7%, and respondents who answered the organizational environmental structure did not. well as

many as 20 respondents with a percentage of 14.3% of the total respondents, which amounted to 140 respondents.

The p-value of the relationship between the organizational environment structure on the effectiveness and efficiency of using SIMRS at RSU Royal Prima Medan is $0.000 < 0.05$, which means that the organizational environment structure is effective and efficient in carrying out SIMRS at RSU Royal Prima Medan in 2021. The organizational structure and environment consists of for cooperation in the organization, strategy, leadership, support from top management and staff support are an important part in measuring the success of the system (Yusof et al., 2016).

Organizations have a significant effect in influencing system use and benefits. According to the results of Erlirianto's research (2017), the organizational environment shows a significant influence on the use of information systems. The regulations that apply in the hospital industry will affect the SIMRS development plan and the policies imposed by the organization in the implementation of SIMRS. The encouragement from the organization can significantly provide motivation to use the system and increase the perception of usefulness compared to technological factors. However, to ensure the continued use of SIMRS, technological factors must be developed and improved in quality.

V. CONCLUSION

Based on the results of the research that has been done, the conclusions in this study are as follows:

1. There were 106 respondents who said SIMRS was useful, and 34 people who said it was not useful.
2. Quality system is effective and efficient in carrying out SIMRS at RSU Royal Prima Medan in 2021.
3. The quality of information is effective and efficient in carrying out SIMRS at RSU Royal Prima Medan in 2021.
4. Quality of service is effective and efficient in running SIMRS at RSU Royal Prima Medan in 2021.
5. Development of an effective and efficient system in running SIMRS at RSU Royal Prima Medan in 2021.
6. The use of an effective and efficient system in running SIMRS at RSU Royal Prima Medan in 2021.
7. User satisfaction is effective and efficient in running SIMRS at RSU Royal Prima Medan in 2021.
8. The organizational environment structure is effective and efficient in carrying out SIMRS at RSU Royal Prima Medan in 2021.

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