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# Analysis Implementation of Hospital Management Information System (SIMRS) at Place of Inpatient Registration (TPPRI) Using The PIECES Method at The Ajibarang Government Hospital

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**ABSTRACT** Hospital Management Information System (SIMRS) is an information communication technology system that processes and integrates the entire process flow of hospital services in the form of a network of coordination, reporting and administrative procedures to obtain information precisely and accurately, and is part of the Health Information System. The implementation of SIMRS at the Ajibarang Regional General Hospital (RSUD) has been carried out since 2014 in almost all units, one of which is the Inpatient Registration Place (TPPRI). This study aims to improve the shortcomings of the system that has been made at SIMRS RSUD Ajibarang. The method used in this study is qualitative. The data collection method used in this study was using in-depth interviews. The data analysis method uses Performance, Information, Economy, Control, Efficiency, and Service (PIECES) which aims to obtain information related to the implementation of SIMRS at the Ajibarang Regional General Hospital. Based on the results of the SIMRS analysis in the TPPRI section, there are still obstacles in its implementation, both in terms of Performance, Information, Economy, Control, Efficiency, and Service. The results showed that there are still several problems, namely the presence of menus that are not functioning optimally, different TPPRI and TPPRJ SIMRS, inaccurate data, Human error, server down, and no warning if an error occurs. SIMRS has been running according to user needs, but cannot be separated from various problems, so it is necessary to improve and develop SIMRS through researcher recommendations so that SIMRS can maintain and improve the quality of service to patients. Based on the description of the problem, as there is no warning if an error occurs, the user will easily continue to input data on SIMRS so that errors are not detected that result in losses for hospitals and produce inaccurate data.

**INDEX TERMS** Hospital, SIMRS, PIECES Method.

## I. INTRODUCTION

Health service facilities are tools and workplaces used to carry out health service efforts both promotive, preventive, curative and rehabilitative carried out by the central government, local governments, and the community. Every health facility from primary or primary, secondary, tertiary level must maintain medical records manually or

electronically with the aim of achieving administrative order, documenting the services that have been provided by health workers to patients[1].

One of them is the Hospital as a provider of health services to the community which has an important role in improving the degree of health. The Hospital itself is regulated in the Regulation of the Minister of Health of the

Republic of Indonesia (PERMENKES RI) Number 3 of 2020 that a Hospital is a health service institution that provides plenary individual health services that provide inpatient, outpatient, and emergency services[2]. A general hospital is a hospital that provides health services in all areas of disease. The basic essence of the hospital is to meet the needs and demands of patients who expect to solve their health problems at the hospital. Patients view that only hospitals are able to provide medical services as an effort to heal and recover from the pain suffered. Patients expect ready, fast, responsive, and comfortable service to patient disease complaints[3].

Law Number 21 of 2020 explains that every hospital is required to record and report on all hospital operations in the form of a Hospital Management Information System[4] The part that is given the responsibility to manage is the medical record section, namely by collecting data, processing data, and presenting data into information[5].

Hospital Management Information System, hereinafter abbreviated as SIMRS, is an information communication technology system that processes and integrates the entire process flow of Hospital services in the form of a network of coordination, reporting and administrative procedures to obtain information precisely and accurately, and is part of the Health Information System[6][7]. According to Susanti, a system is a collection of elements that interact to achieve a certain goal[8]. According to Purnia & Mirawati (2015), a system is a group of integrated elements with the same intention to achieve a goal[9]. The application of SIMRS is very important to integrate all information generated in the service process. Currently, the hospital computer-based Management Information System (SIMRS) is a very important supporting facility, it can even be said to be absolute to support hospital operational management[10] Health information systems are part of the national health system (SKN), therefore the health system in Indonesia and health information are needed by hospitals. According to Harsono's 2015 research on the analysis of the implementation of the Management Information System of the Integrated Regional General Hospital (SIM-RSUD) in West Kalimantan Province, the findings show that a customized SIMRS software system, understanding of information technology functions and infrastructure as well as good mapping are the keys to successful implementation of SIMRS[10]

The importance of information systems in hospitals has been regulated in Minister of Health Regulation Number 82 of 2013 concerning SIMRS which states that in accordance with Law Number 44 of 2009, every hospital is required to record and report all hospital operations in the form of a hospital management information system (SIMRS)[6][11]. There are still many hospitals that have not implemented SIMRS optimally and have not even evaluated the application of SIMRS, along with this there are several previous studies related to the application of SIMRS, namely SIMRS Analysis with the PIECES Method at Dr. H. Koesandi Bondowoso Hospital[12], Evaluation of the

BPJS Outpatient Registration System with the PIECES Method at Sidoarjo Hospital[13], and SIMRS Analysis in the Patient Registration Section Using the PIECES Method at RSKIA Ummi Khasanah[13], from the results of the study there are still various problems or obstacles.

The implementation of SIMRS at the Ajibarang Regional General Hospital (RSUD) has been carried out in almost all units, one of which is the Inpatient Registration Place (TPPRI). Based on the results of SIMRS analysis of TPPRI, there are still obstacles in its implementation, both in terms of Performance, Information, Economy, Control, Efficiency, and Service. Based on the background description above, the author is interested in taking the title Analysis of Hospital Management Information System Implementation at Inpatient Registration Places Using the PIECES Method at Ajibarang Hospital. The contributions of this study are:

1. A comprehensive analysis method by integrating aspects of PIECES, so that this research can provide a deep understanding of the various dimensions involved in the implementation of SIMRS.
2. Identifying key factors through the PIECES approach, this study succeeded in identifying key factors that influence the success or failure of SIMRS implementation.
3. A deep understanding of successful implementation, thus this study not only provides an analysis of the current situation, but also offers recommendations to improve the effectiveness and efficiency of SIMRS at RSUD Ajibarang.
4. Guidance on continuous improvement and development, this research can be used by hospitals as a basis to identify areas that require improvement and implement appropriate strategies to improve SIMRS performance.

## II. METHOD

This research was carried out at Ajibarang Regional Hospital on May 8 – June 3, 2023. This research uses qualitative methods. Qualitative research methods are research methods used to examine the conditions of natural objects, where researchers are key instruments, data collection techniques are carried out in trinregulation, data analysis is inductive or qualitative, and qualitative research results emphasize meaning rather than generalization [14].

The data research method in this study that is the object of research is SIMRS TPPRI, the subjects of this study are 3 (three) SIMRS users at the inpatient registration point and 1 (one) head of medical records.

The data collection method used in this research was using in-depth interviews by visiting one by one TPPRI SIMRS users, as many as 3 users who became the main informants. Triangulation carried out is a triangulation technique, namely by carrying out three different data collection techniques on the main informant, namely, ranging from interviews, observations, to documentation. In addition, this study also made direct observations of the

interview results to ensure the truth of the data and prove what the informant said with observation and documentation taken to be data reinforcement. To understand the performance of the existing system, data collection is carried out through interviews, observation, and documentation[15]. The data analysis method uses PIECES which aims to obtain information related to the application of SIMRS at the Ajibarang Regional General Hospital.

### III. RESULTS

Ajibarang Regional General Hospital has implemented a Hospital Management Information System (SIMRS) in the TPPRI unit since 2014, the application and utilization of SIMRS is carried out by the hospital's Information and Technology (IT) department in the manufacture and development of SIMRS. TPPRI is a very important part of SIMRS, as it regulates the admission and registration of patients to be hospitalized.

Hospital management information systems actually provide convenience in service operations and can minimize obstacles that can occur in patient services at the hospital[16]. However, the reality in the field is inversely proportional to what is expected regarding the implementation of SIMRS which still has various obstacles in its operation. According to Santi (2020), system constraints are something that limits the system from achieving its best performance[17]. These system problems and constraints can be analyzed using a method, one of which is the *PIECES* method which can analyze system constraints based on aspects of Performance, Information, Economics, Control, Efficiency, and Service the system. The *PIECES* method was introduced by James Wetherbe in his book *System analysis and design: Traditional, Best Practices 4th Ed*[18]. The *PIECES* method is used to identify problems, by performing a *PIECES* analysis it determines the main problem for improvement[19].

### IV. DISCUSSION

#### A. SIMRS PERFORMANCE ANALYSIS BASED ON PERFORMANCE ASPECTS

Hospital information system is an integrated system starting from data collection, data processing, information presentation and delivery of information needed for hospital activities[20]. SIMRS performance analysis based on Performance aspects is an analysis related to information system performance which is assessed from throughput, response time, audibility, communication habits, completeness and tolerance[21]. Based on the results of interviews, observations, and documentation related to SIMRS performance analysis based on Performance aspects, the following information was obtained:

1. Based on throughput indicators, SIMRS can produce the output that users need. However, there are still

items or menus that cannot produce output such as to check the number of beds available and also the room in realtime. One of them is the statement of TPPRI officers with a medical record education background as follows:

"... Yes, it seems that it can, the number of available beds. So here has been clicked on the number of TT but here you can't check how much you live"

**(Informant 1)**

"...You can, but not everything works, which can't be like checking the condition of the room in real time so we don't know if the empty room is really empty yet, it should be if the patient comes out at check out."

**(Informant 3).**

2. Based on the response time indicator, it can be interpreted as the time needed to start SIMRS or the SIMRS operation process during the service process. Based on the results of interviews and observations, SIMRS can be accessed quickly for a range of less than 1 minute, the operation of SIMRS during service is also in accordance with SPO and standards, which is less than 15 minutes for TPPRI registration. Like the following statement:

"... hurry up, mas." **(Informant 1)**

With a fasttime range, it can have an impact on faster service as well.

3. Based on the audibility indicator (suitability of data), namely the suitability of the data inputted by officers with the information produced by the system. That is, what is inputted corresponds to what is displayed and does not change. The results of observations and interviews also show that SIMRS can produce information that is in accordance with the data inputted, but there is still data that has been inputted but has not appeared and if there is a data discrepancy it can be caused by incorrect data input (human error) and incomplete data. Like the following statement:

"... Yes, according to mas, but sometimes there is still what we input still does not appear so it must be re-inputted" **(Informant 1)**

"...There is, yes, because the human resources do not understand the completeness of the data, such as the cellphone number is not filled (human error) and not necessarily the identity is complete" **(Informant 3).**

4. Based on indicators of communication habits, namely the ease of *interface* or display of SIMRS for users. This *interface* aims to make the information system easy to use by system users. Based on the results of interviews and observations, it shows that SIMRS has a display that is easy to understand, however, the appearance is also sometimes less attractive so it will look boring. There is also a guidebook for operating SIMRS. Like the following statement:

"... In my opinion, if it looks less attractive, mas, if you can make it even more attractive, but it is as needed" **(Informant 1).**

According to Murnita (2014) system performance can be said to be good if the system is able to meet user needs in doing work, so that users can work more easily [22].

5. Based on the completeness indicator is the level at which the full implementation of the functions of the SIMRS. Starting from the menus on SIMRS can function optimally and what function the program can be run so that it can help officers in completing their work. Based on the results of interviews and observations, there is still a menu that does not function optimally at SIMRS TPPRI. Like the following statement:

*"... Yes, so far, it has been optimal, yes, but there are still optimal things, such as its availability, if we edit we have transferred data to the room if, for example, in that room we have done billing but it turns out that the patient moved the room or canceled to the room, if we want to edit we want to delete the data, we can't"* (Informant 2).

Based on the error tolerance indicator, which is an assessment of the program if it experiences errors and even experiences damage resulting from the service process that becomes hampered. Based on the results of interviews and observations, if there is a major damage or error so that the system cannot be used by the user, it will be reported to the IT officer and if there is minor damage or error, the SIMRS user can correct it.

## B. SIMRS PERFORMANCE ANALYSIS BASED ON INFORMATION ASPECTS

Analysis of SIMRS performance based on Information aspects is an analysis of information produced by the system which is assessed from accuracy, data flexibility, data laziness, relevance of information, and presentation of information. Evaluating this aspect of information is important because it contains information needed by system users, especially health information. According to Ayuninghemi & Deharja (2017), information about health is a very important part of life[23]. According to Setiawan and Meilana (2016), information quality affects the satisfaction of clinic information system users, including accuracy, completeness, output format, timeliness, and relevance of the information submitted[24]. If the ability of the information system is good, then the user will get accurate, timely and relevant information as expected[25]. Based on the results of interviews, observations, and documentation related to SIMRS performance analysis based on the following Information aspects:

1. Based on the Accuracy indicator, it is the level of information produced that has a high level of accuracy, it can also be called accurate information. Based on the results of interviews and observations, it shows that SIMRS can provide inaccurate information with an accuracy level that has not reached 100%. This is corroborated by one of the informant's statements as follows:

*"... Not yet accurate, namely from the initial source the data is lacking and the input is still not valid"* (Informant 3).

This can be influenced by the existence of incomplete initial data sources such as identity and other data and also there is still invalid input data.

2. Based on information relevance indicators, namely conditions where the information produced is in accordance with needs. An information can be said to be appropriate if the information can help objects that need information. Based on the results of interviews and observations, it shows that SIMRS can provide information needed by SIMRS users such as registering patients for treatment, patients to be hospitalized, looking for reports or patient data and so on. SIMRS users provide advice related to user needs such as the need to develop an information system related to the number of beds available, patient information that has been moved and real-time or empty rooms. This is corroborated by the informant's statement as follows:

*"... For the needs, it is appropriate, but for patients who have been transferred or we can't see yet, the suggestion may be from the ward SIMRS, for example, the patient has come, there is a check, so that it can be seen"* (Informant 1)

*"... Yes, the suggestion is that if we can see the number of available beds in SIMRS all this time, we have to ask the room how much availability if it can be displayed in SIMRS"* (Informant 2)

*"... While appropriate, the suggestion in the TPPRI section is that it is necessary to develop real-time or empty room information"* (Informant 3).

3. Based on the indicators of information presentation, the conditions under which information is presented in the appropriate form. Information systems must have information that is easily understood by users, so that users avoid difficulties. Based on the results of interviews and observations, it shows that the display and presentation of information on SIMRS is good and easy to understand by users. Such as from the use of words or language that is easy to understand, the layout of the menu and also the item items in it.
4. Based on the indicator of data flexibility is the information generated by the system is easily adapted to the needs of the user. The goal is that users feel satisfied with the information system and services can be completed quickly. Based on the results of interviews and observations, it shows that the information generated by SIMRS can be adjusted by users. If there is an error when inputting data, the user can correct the error with the edit data menu, for example there is an error in inputting patient data such as name, age, address and others the user only clicks edit data to correct it. However, there is data that cannot be edited by SIMRS users in TPPRI, such as the following informant statement:

"... Still not optimal, if from the room we transfer the data has been billed from here, it can't be edited, it must be reported to the IT first, so that there can be changed, the data does not enter the room that should be" (**Informant 2**)

Based on this, SIMRS users must first report to the IT department to confirm their data. So this takes longer when compared to being directly edited by SIMRS users.

### C. SIMRS PERFORMANCE ANALYSIS BASED ON ECONOMIC ASPECTS

Analysis of SIMRS performance based on *economic aspects* is an analysis related to the benefits and costs resulting from the implementation of information systems assessed from *reusability* and resources. This is also very important, because a system is affected by the amount of costs incurred[26]. The application of information systems can be found in all fields, one of which is in the health sector[27]. Based on the results of interviews and observations related to SIMRS analysis based on *Economic aspects* as follows:

1. Based on *reusability* indicators (reusable) is the level at which an information system or part of the information system can be reused in other applications. Based on the results of interviews and observations, it shows that SIMRS has been integrated with BPJS Kesehatan such as *V-claim* and printing BPJS Participant *Eligibility* Letters. With the integration of SIMRS with BPJS or other applications, the patient service process can run well. In addition, the benefit of integration with other applications is that efficient relationships can be established.
2. Based on resource indicators, namely the total amount of resources used in the development or implementation of the system, including human resources and economic resources. This includes officers and budgets in efforts to develop the system and improve the system. Based on the results of interviews and observations, the provision of SIMRS training at TPPRI has been carried out more than 5 (five) times since the implementation of SIMRS at TPPRI. Training is held by hospital IT or training internally instead of large training or outside the hospital. Then the IT also informed and explained if there is a new menu on TPPRI SIMRS. IT is also always ready and available to repair SIMRS if needed by users and also carry out system maintenance to run properly. This is corroborated by research by Ines Meiyola P, Feby Erawantini, et al (2020) revealed that from an economic point of view at Bhayangkara hospital, resources have been supported in terms of supporting facilities and infrastructure and there are already IT officers related to SIMRS[28].

### D. SIMRS PERFORMANCE ANALYSIS BASED ON CONTROL ASPECTS

Analysis of SIMRS performance based on Control aspects is an analysis related to system security from abuse attempts. Aims to assess or improve the level of security and the level of security supervision at the time of application of information systems. Based on the results of interviews and observations related to SIMRS performance analysis based on Control aspects, as follows:

1. Integrity indicators are the degree to which access to software or information systems by unauthorized persons can be controlled[21]. The system can only be accessed by users who have a *username* and *password*. Based on the results of interviews and observations, it shows that SIMRS users have a *username* and *password* to access the SIMRS application. *Username* and *password* are provided by IT so that not everyone can access it. There is also a menu to change *passwords* and *usernames*. This is corroborated by the following informant's statement:
 

"...For usernames and passwords, each of us has its own, yes, to change passwords there is also this, so it can be adjusted to our own needs" (**Informant 1**).
2. Based on security indicators are mechanisms that control or protect programs and data. The system has restrictions on access to the division of labor of officers. Based on the results of interviews and observations, it shows that each user has different SIMRS access rights, for example, TPPRI SIMRS users are only given access to TPPRI and also others TPPRJ also only for TPPRJ access. So that SIMRS users cannot access units that are not their responsibility. So far, the implementation of SIMRS at TPPRI has never been attacked by human hacking (*hackers*) or viruses but IT must remain vigilant related to this threat that can come at any time. This is corroborated by the informant's statement as follows:
 

"... If I haven't been there so far, the data is safe" (**Infroman 1**).

### E. SIMRS PERFORMANCE ANALYSIS BASED ON EFFICIENCY ASPECTS

The efficiency aspect is an analysis related to the ease of information systems which is assessed from usability and maintainability. Aims to assess the level of ease of use of information systems. An information system should be easy to use by both novice and reliable users[29]. Based on the results of interviews and observations related to SIMRS performance analysis based on efficiency aspects as follows:

1. Based on the Maintainability indicator (repair) is the effort needed to correct and find an error in the system. Based on the results of interviews and observations, it shows that the hospital has facilitated IT officers who are on special duty for the repair or development of SIMRS. This is evidenced by the following informant

statement:

"...Yes, most of us from RM discuss and report, we have a meeting between RM proposing and collaborating with the IT team" (**Informant 1**).

Based on this, it shows that if there are problems and require improvement or development, RM reports to the IT team to improve and follow up related to these obstacles. In addition, the IT team also performs system maintenance to keep it running well. Obstacles found in SIMRS at TPPRI, including the existence of two different or separate SIMRS systems between TPPRJ and TPPRI, BPJS systems that are errors so that they cannot make guarantees, internet constraints and data that has been billed from the wrong room. This is based on the following informant statement:

"...If for example, the data has been billed from the wrong room, at least the solution is done by between IT, related to the internet, sometimes there are problems and reported to IT" (**Informant 2**).

"...If in SIMRS the problem is the most from BPJS, usually, updating-updating is usually interrupted because the BPJS system is an error, our BPJS maintenance cannot be guaranteed. The solution, yes, we wait for BPJS to be finished, then we can, if they haven't been completed, we also hold on, but the service is still running." (**Informant 3**).

2. Based on usability indicators, namely the level of quality of the system that is easy to learn, easy to use and encourages users to use the system as a positive tool in completing tasks. According to the informant's statement as follows:

"... In my opinion, it's a bit easy but it needs more understanding because the appearance of the king and ranap is similar so rich is difficult to distinguish, if for one system, it seems faster to register, but if in two systems it might be a bit long, yes" (**Informant 1**).

Based on the statement above, the system in this case SIMRS is easy to use, but there is still an obstacle, namely SIMRS TPPRJ and TPPRI are different, so they look different. This shows that this is still inefficient, compared to the existence of the same system, so if you want to register patients there is no need to open a different SIMRS. Therefore, it is necessary to develop SIMRS so that it becomes a system. In addition, the time for adaptation for beginners who are new to using SIMRS takes about a week to be able to fully understand SIMRS. Such as the informant's statement as follows:

"...For beginners, it's a week to master" (**Informant 3**).

#### F. SIMRS PERFORMANCE ANALYSIS BASED ON SERVICE ASPECTS

SIMRS performance analysis based on service aspects is an analysis related to services resulting from the implementation of the system which is assessed by accuracy and reliability. Aims to determine the level of

service provided by the information system to user and customer satisfaction and the services produced by a system used. Because, along with the times, the development of information systems is also increasing[15]. Based on the results of interviews and observations related to the analysis of SIMRS performance based on service aspects, as follows:

1. Based on reliability indicators represents the degree to which a program can reliably perform the requested function called reliability. The system can be trusted to perform the functions requested by the user, making tasks easy to perform and facilitating or facilitating the user of the system and there are user access rights, IT expert tests or medical records, and no misnaming (identity). Based on the results of interviews and observations, it shows that SIMRS provides convenience to SIMRS users, such as ease in registering patients, searching for patient data, and providing alerts if there is data that has not been filled in.
2. Based on accuracy indicators represents the accuracy and control of the system. The system can assist officers in the accuracy of input, process and output, data processing and warnings if errors occur in the system. Accuracy here refers to the audit of the completeness of filling in medical records such as filling in identity, checking, diagnosis and so on. Based on the results of interviews and observations, it shows that SIMRS can assist officers in doing their jobs, such as registering patients and if there is a data error from SIMRS will reject this can be caused by inaccuracy in filling in identity and so on. This is evidenced by the statement of the informant as follows:
 

"... Yes, it is very helpful, mas, yes later if for example there is a data error from the SIMRS it rejects, for example the data does not match the data not found" (**Informant 2**)

This research has the ability to only conduct analysis in the TPPRI section, while according to Dinata's research, Finno Harta; Deharja, Atma with the title SIMRS Analysis with PIECES Method at RSU Dr. H. Koesnadi Bondowoso conducted research in 6 (six) units that use SIMRS, namely pharmacy, medical records, polyclinics, TPPGD, TPPRI, and TPPRJ.

#### V. CONCLUSION

Based on the Performance aspect, there are menus on SIMRS that have not functioned optimally, such as checking the number of available beds and also realtime rooms. What the officer does is contact the IT to immediately fix it so that this menu can be used. In addition, it is necessary to develop related to SIMRS to make it better. Based on the Information aspect, there are two different SIMRS for TPPRJ and TPPRI registration. What the officer did was to propose to the hospital's IT that the development of SIMRS be carried out by making a system for TPPRJ and TPPRI registration. This is so that

officers do not need to log in to different SIMRS so that later it will save service time to be more efficient. Then the existence of data that is still 100% inaccurate caused by errors in data input is to provide understanding to the registering officer by re-reading the SPO and the manual for using SIMRS in registering patients. For IT, SIMRS development must be carried out by making data storage denials if something goes wrong. Based on the Economic aspect and the control aspect, there is no problem so there is no advice from the researcher. Then in the Efficiency aspect, the solution to problems related to the existence of two different SIMRS is to develop or make one SIMRS system by IT, this aims to save the officer's time when registering patients. This is also corroborated by Djahir (2014) revealing the importance of improvement efforts for the system to support the improvement of service quality[30]. Regarding the server down and BPJS system errors due to maintenance, the impact of it can affect service, one of which is not being able to make guarantees. What the officer does is contact the IT to be able to immediately communicate to the BPJS, so that this problem is immediately handled or corrected. Related to service, officers wait for the server to return to normal and register patients manually. Based on the service aspect, there is no warning if there is a data input error or other errors. The thing that must be done by the officer is to contact the IT immediately to develop the system so that this feature exists, so that later it will minimize the occurrence of input errors that result in incomplete data.

## REFERENCES

- [1] Ministry of Health of the Republic of Indonesia, "REGULATION OF THE MINISTER OF HEALTH OF THE REPUBLIC OF INDONESIA NUMBER 24 OF 2022 CONCERNING MEDICAL RECORDS," *Regulation. Minister of Health.*, Vol. 33, No. 1, pp. 1–12, 2022.
- [2] Permenkes RI, "Regulation of the Minister of Health of the Republic of Indonesia No. 3 of 2023 concerning Health Service Tariff Standards in the Implementation of Health Insurance Programs," *Minister of Health. RI*, pp. 1–721, 2023, [Online]. Available: <https://www.kemkes.go.id/downloads/resources/download/lain/PERMENKES-NO-3-TAHUN-2023-TTG-STANDAR-TARIF-PELAYANAN-KESEHATAN-DALAM-PENYELENGGARAAN-JAMINAN-KESEHATAN-1.pdf>
- [3] R. A. Listiyono, "Descriptive Study on Service Quality at Dr. Wahidin Sudiro Husodo General Hospital Mojokerto City After Becoming a Type B Hospital," *J. Kebijak. and Manaj. Public*, vol. 1, no. 1, pp. 2–7, 2015.
- [4] Ministry of Health of the Republic of Indonesia, "Permenkes RI Number 21 of 2020 concerning the Strategic Plan of the Ministry of Health for 2020-2024," *the Ministry. Wellness. RI*, vol. 9, no. May, p. 6, 2020, [Online]. Available: [https://www.slideshare.net/maryamkazemi3/stability-of-colloids%0Ahttps://barnard.edu/sites/default/files/inline/student\\_user\\_guide\\_for\\_spss.pdf%0Ahttp://www.ibm.com/support%0Ahttp://www.spss.com/sites/dm-book/legacy/ProgDataMgmt\\_SPSS17.pdf%0Ahttps://www.n](https://www.slideshare.net/maryamkazemi3/stability-of-colloids%0Ahttps://barnard.edu/sites/default/files/inline/student_user_guide_for_spss.pdf%0Ahttp://www.ibm.com/support%0Ahttp://www.spss.com/sites/dm-book/legacy/ProgDataMgmt_SPSS17.pdf%0Ahttps://www.n)
- [5] A. Harsono, "Regional General Hospital (SIM-RSUD) Integrated in Province," *Exploration Inform.*, Vol. 5, pp. 11–22, 2015, [Online]. Available: <https://www.eksplorastikom-bali.ac.id/index.php/eksplora/article/view/72/55>
- [6] Ministry of Health of the Republic of Indonesia, "Regulation of the Minister of Health of the Republic of Indonesia Number 82 concerning Hospital Management Information System," *Peratur. Minister of Health.*, No. 87, pp. 1–36, 2013.
- [7] L. Review, "Literature Review on The Effectiveness of Electronic Medical Records," pp. 57–64, 2023, [Online]. Available: <https://ukdiss.com/litreview/electronic-medical-record-effectiveness.php>
- [8] M. Susanti, "Design of Web-Based Academic Information System at Smk Pasar Minggu Jakarta," *Informatika*, vol. 3, no. 1, pp. 91–99, 2016.
- [9] Mirawati and S. Dini Purnia, "Development of Library Information System at State Junior High School 5 Ciamis," *Informatics.*, vol. II, no. 2, pp. 385–394, 2015, [Online]. Available: <https://repository.bsi.ac.id/index.php/repo/viewitem/541>
- [10] Wimmie, "Management Information Systems for Hospital Health Services," *J. Inf. Health. Indones.*, Vol. 02, No. 1, pp. 32–28, 2017.
- [11] Nassor Faiza Ali, "Permenkes No. 82 of 2013 concerning Hospital Management Information System," *J. Am. Chem. Soc.*, Vol. 26, No. 4, pp. 1–37, 2013, [Online]. Available: <https://shodhganga.inflibnet.ac.in/jspui/handle/10603/7385>
- [12] F. H. Dinata and A. Deharja, "SIMRS Analysis with PIECES Method at RSU Dr. H. Koesnadi Bondowoso," *J. Kesehatan.*, Vol. 8, No. 2, pp. 106–117, 2020, DOI: 10.25047/J-Kes.V8i2.155.
- [13] Windarti, "Simrs Analysis in the Patient Registration Section Using Method P," *J. Inf. Health. Indones.*, Vol. 9, No. 1, pp. 35–46, 2023.
- [14] M. R. Fadli, "Understanding the design of qualitative research methods," *Humanika*, vol. 21, no. 1, pp. 33–54, 2021, doi: 10.21831/hum.v21i1.38075.
- [15] A. Deharja and V. Permatasari, "IMPLEMENTATION OF SMS GATEWAY TO INCREASE THE NUMBER OF VISITS at POSYANDU CATLEYA 14 JEMBER," *J. Ilm. Inov.*, Vol. 16, No. 3, pp. 168–171, 2017, DOI: 10.25047/jii.v16i3.306.
- [16] A. Faiz Risqullah, U. Anisatur Rosyidah, and M. Dasuki, "Analysis of Web-Based Medical Record Media Transfer Information System with Pieces Method at Dr. R. Soedarsono Hospital Pasuruan City," *SIBATIK J. J. Ilm. Bid. Sos. Ekon. Culture, Technology. and Educators.*, Vol. 2, No. 5, pp. 1609–1622, 2023, DOI: 10.54443/sibatik.v2i5.860.
- [17] M. W. Santi and A. Deharja, "The Effect of Information System Usability and Midwife Involvement toward Perceived Usefulness of Jember Safety Center ( JSC ) with FAI in Jember Regency," *2nd Int. Conf. Food Technol.*, no. January, pp. 277–281, 2019, [Online]. Available: <https://publikasi.polije.ac.id/index.php/ProceedingICOFA/article/view/1837/1167>
- [18] A. P. Thenata and A. G. Prabawati, "Evaluation Information Technology Utilization of School Subject Scheduling Using Pieces Framework," *J. Terap. Teknol. Inf.*, vol. 2, no. 1, pp. 53–63, 2018, doi: 10.21460/jutei.2018.21.97.
- [19] Hetty Meileni, S. Oktapriandi, and D. Apriyanti, "PIECES Analysis on WebGIS Applications of Creative Economy Mapping (Ekraf)," *Teknika*, vol. 9, no. 2, pp. 138–145, 2020, doi: 10.34148/teknika.v9i2.293.
- [20] A. Pujihastuti, "Application of Management Information Systems in Support of Hospital Management Decision Making," *J. Manaj. Inf. Health. Indones.*, Vol. 9, No. 2, p. 200, 2021, DOI: 10.33560/jmiki.v9i2.377.
- [21] D. A. Nirwana and E. Rachmawati, "Evaluation of the Application of General Registration Information System Using the Pieces Method at RSUD Kabupaten Sidoarjo," *J-REMI J. Record Med. and Inf. Health.*, Vol. 1, No. 3, pp. 264–274, 2020, DOI: 10.25047/J-Remi.V1I3.2057.
- [22] R. Murnita, E. Sediyo, and C. T. Purnami, "Performance Evaluation of Pharmaceutical Management Information System at Roemani Muhammadiyah Hospital with Hot Fit Model Method," *J. Manaj. Wellness. Indones.*, Vol. 4, No. 1, pp. 11–19,

2016, DOI: 10.14710/JMKI.4.1.2016.11-19.

[23] R. Ayuninghemi and A. Deharja, "Development of E-Consul Application Services," *Pros. Semin. Nas. Tenderloin. Researcher. Polythetic. Jember State*, pp. 266–272, 2017, [Online]. Available: <https://publikasi.poliije.ac.id/index.php/prosiding/article/view/797/559>

[24] Dony Setiawan and Meilana Siswanto, "The Effect of System Quality, Information Quality and Service Quality on User Satisfaction of Hospital Management Information Systems Kalisat Region Jember Regency," *J. Ilm. Inov.*, pp. 98–101, 2016.

[25] I. Dewi Sintawati and T. Hartati, "Analysis of Pieces Method for Radiation Protection Equipment Sales System on CV Kachelara Jakarta," *J. Akbar Juara*, vol. 5, pp. 262–271, 2020.

[6] R. Muhidin, N. F. Kharie, and M. Kubais, "Analysis and Design of Information Systems in Sma Negeri 18 South Halmahera as Media Promotion of Web-Based Studies," *IJIS-Indonesia J. Inf. Syst.*, vol. 4, no. April, pp. 69–76, 2019, [Online]. Available: <https://media.neliti.com/media/publications/260171-sistem-informasi-pengolahan-data-pembeli-e5ea5a2b.pdf>

[27] D. I. Puskesmas, W. Kabupaten, B. Tahun, F. Erawantini, and A. Deharja, "MANAGEMENT OF PUSKESMAS (SIMPUS) WITH DOQ-IT METHOD Along with the rapid development of technology and information, the use of information technology can be found in various fields, one of which is the health sector. It is widely applied p," vol. 4, no. 1, 2016.

[28] I. M. Pradhanthi, F. Erawantini, S. Farlinda, and D. S. H. Putra, "Evaluation of Accreditation Document Management Information System (SISMADAK) Using PIECES Method at Bhayangkara Lumajang Hospital," *J-REMI J. Record Med. and Inf. Health.*, Vol. 2, No. 1, pp. 21–27, 2020, DOI: 10.25047/J-Remi.V2I1.2183.

[29] A. Hanif, "Simple Information Systems Using Spreadsheets and Macros for Informal Micro Enterprises," *Semin. Nas. Techno. Komput. Sains*, vol. 1, no. 1, pp. 851–855, 2019, [Online]. Available: <https://www.prosiding.seminar-id.com/index.php/sainteks/article/view/241>

[30] D. & D. P. Yulia, *Management Information System Teaching Materials*, 1st ed. Indonesia: deeper publication, 2015.

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