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Management Information System Success Rate on Pusri Palembang Hospital Using HOT-FIT Models

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Abstract

Pusri Palembang Hospital is a public hospital that has implemented a Hospital Management Information System (SIMRS) since 2012. SIMRS supports all health care business processes and administrative procedures to obtain information quickly, precisely, and accurately. During the implementation of SIMRS, some obstacles often occur in its use, such as user complaints regarding the operational functions of the system so that it has not run optimally. This study aims to evaluate the success of implementing SIMRS at the Pusri Hospital in Palembang and determine the effect between variables. This study uses the HOT-Fit model variable consisting of human components (system use and user satisfaction), organization (organizational structure and environment), technology (system quality, information quality, service quality), and benefits. This study uses a survey research type with qualitative methods. Based on the analytical approach, this research is classified into quantitative research. It was preceded by quantitative research with 165 respondents and followed by qualitative research by interviewing six informants. The data analysis technique used is PLS-SEM with SmartPLS tools. The results showed that on the technology component: the quality of the system (73.0%) was good, the quality of information (74.2%) of the data produced was accurate, quality, and relevant, and the quality of service (75.5%) was good. The human component: the use of the system (74.2%) is good because the officers receive the system well, and user satisfaction (75.6%) is satisfied using SIMRS. Organizational Components: organizational structure (78.0%) and organizational environment (73.6%) are suitable. In terms of benefits (76.1%), it has helped increase efficiency and effectiveness in work. Based on the results of hypothesis testing in path analysis, it is known that there are eight relationships between variables that have a significant effect and four relationships that do not have a significant effect. The most significant influence is the influence of the organizational structure on the organizational environment. At the same time, the lowest level of correlation is the relationship between the quality of information and the use of the system. The overall success rate of SIMRS implementation is 76.1%. The research results show that the existence of the system helps users support their work and the successful use of the system from the user's perception at this time is at a successful level.

Keywords: Hospital, HOT-Fit, PLS-SEM

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1. INTRODUCTION

Based on [1], hospitals are defined as health service institutions that provide comprehensive health services that provide inpatient, outpatient, and emergency services. Hospitals are very complex organizations in providing health services through a health maintenance approach (promotive, preventive, curative, and rehabilitative) carried out thoroughly according to applicable laws and regulations. The Hospital is responsible for providing quality services following standards to meet the needs and guidance of its users[2]. In providing complete health services to the community, hospitals must always pay attention to all aspects that play an essential role, including the availability of health data and information.

The availability of health data and information is essential in hospital decision-making. If the data collected by the Hospital is incorrect, it will produce incorrect information, and if the information does not match the expected, it can affect decision-making in the Hospital [3]. For the data and information produced to be appropriate, the Hospital must carry out all recording and reporting activities about all hospital activities and integrate all the information generated in the service process. The importance of information systems in hospitals has been regulated in PERMENKES RI No.82 of 2013. Article 3 states that every Hospital is obliged to organize a Hospital Management Information System (SIMRS) [4].

Sistem Informasi Manajemen Rumah Sakit (SIMRS) adalah suatu sistem teknologi informasi komunikasi yang memproses dan mengintegrasikan seluruh alur proses bisnis layanan kesehatan dalam bentuk jaringan koordinasi, pelaporan, dan prosedur administrasi untuk memperoleh informasi secara cepat, tepat, dan akurat dan merupakan bagian dari Sistem Informasi Kesehatan [4]. Sistem ini memiliki dua fungsi utama yaitu untuk keperluan manajemen dan pengolahan data pasien. Dari sisi manajemen, sistem ini memiliki peranan dalam mengatur data keuangan, material dan teknis, sistem kepegawaian, pembayaran (tagihan) ke pasien, dan perencanaan strategi. Dari sisi pasien berfungsi untuk mengelola data pasien masuk dan pasien keluar serta mengelola data medis pasien yang meliputi perawatan, diagnosis, dan terapi [5].

One of the hospitals that have implemented SIMRS is Pusri Palembang Hospital. Pusri Palembang Hospital has implemented SIMRS since 2012 to facilitate access to services so that it can run more optimally. SIMRS has been implemented in each unit at Pusri Palembang Hospital, which is equipped with 17 integrated modules. The SIMRS at Pusri Palembang Hospital consists of registration systems, outpatients, medical records, pharmaceuticals, laboratories, radiology, nutrition, procurement, general, hospitalization, physiotherapy, human resources, finance, hemodialysis, intensive care units, emergency department installations, and doctors.

In the initial study conducted at Pusri Palembang Hospital with Mr. Apriandi Lutharjo, A.Md., as Kaur SIMRS Pusri Hospital, it was known that several obstacles caused the optimal utilization of SIMRS. One example of problems that occur in the technological aspect, namely in the pharmaceutical unit of the system often has trouble accessing quickly, and the system becomes unstable because of using WLAN. SIMRS has incomplete features and functions and does not suit users' needs. This causes the system to undergo often upgrades and the addition of many features since the SIMRS was implemented. Data that has been inputted is sometimes not stored, so the resulting report is not appropriate because there is often a re-input that causes the input to be twice, and the data that has been inputted in the system experiences the data stuck.

In addition to the technological aspect, problems also arise from the human aspect. In using the system, users often experience errors in inputting data into the system. Users also have difficulty operating the system, which results in frequent human errors and a wrong flow. Based on the results of observations and interviews that have been conducted with Mrs. Siti Aisyah, A.Md.PK., at kaur Medical Records pusri Hospital, information was obtained that during the implementation of the medical record system, there are often obstacles to technical aspects such as data inputted is not stored so that re-input is carried out. There is also a problem in the organizational aspect in the form of a lack of cooperation between SIMRS users in implementing the system caused by one user not inputting data into the system will affect other users.

The pharmaceutical installation also dug up information through interviews conducted with Mrs. Ratri Anjar Sari, A.Md., an employee of the administrative department, and the results obtained problems on the human aspect. The use of SIMRS in pharmaceutical units has not been following the expectations of its users. Users complain that when inputting drug data on the system cannot be entered once but must do twice the entry because it thickens chronic drug data and INACBG. So that the work becomes inefficient because it requires to rework. In addition, the SIMRS display is also not yet user-friendly for its users.

According to [6], errors regarding misalignment of user needs in the system will only lead to futile efforts and rework. The misalignment of user needs with the system will also impact user satisfaction. User satisfaction is one of the assessments that concern whether the information system presented, follows system users' needs [7]. Given that the role and purpose of SIMRS in-hospital services are significant, one of which is to support the process of disseminating information in the form of data and patient examination results, it needs to be supported by SIMRS who are reliable in managing the information. The correct implementation of SIMRS will positively impact management and increase efficiency and ease of decision-making in the future. According to Larinse [8], evaluating an information system is a real effort to determine its proper condition of an information system.

Evaluation of information systems is an activity to measure or explore all system attributes (planning, development, implementation, or operation). Evaluation of management information systems defines how well management information systems can operate in organizations that implement them to improve them for the foreseeable future [9]

From the description of the problem, the SIMRS provider must be able to create a quality system following user expectations so that the positive benefits of this system will be obtained. Referring to the preliminary study conducted by researchers, the application of SIMRS at Pusri Palembang Hospital has never been evaluated related to the successful implementation. There are many information system evaluation models, including Delone and Mclean success models, Task Technology Fit (TTF), End-User Computing Satisfaction (EUCS), Technology Acceptance Model (TAM), and Human Organization Technology-Net Benefit (HOT-FIT). HOT-FIT is a complete model from the system evaluation models and is best suited to the existing problem conditions compared to other models. The HOT-FIT model accommodates variable structure and organizational environment where the variable was not present in the previous model.

The HOT-Fit model is a complementary model to the previous evaluation model. The TAM model only introduces 2 key variables, namely perceived ease of use (ease) and perceived usefulness, which are central to predicting a user's acceptance of computer technology. While the evaluation using the EUCS model emphasizes end-user satisfaction with aspects of technology by assessing the content, accuracy, format, time, and ease of use. The same is the case with the TTF model, which only places information technology will only be used if the functions and benefits of information technology support the user's activities. Unlike the HOT-Fit model, which is looking for a synergy of the three aspects, namely medical personnel as human resources (human), hospitals as organizations, and SIMRS as the technology used. Based on this, researchers will conduct an evasion of the success rate of SIMRS application to find out how successful the implementation of SIMRS is and what factors affect the successful implementation of SIMRS at Pusri Palembang Hospital.

2. METHOD

This study uses this type of survey research with qualitative methods. Based on its analytical approach, this research can be classified into quantitative research, which is research that reveals the small amount of an influence or relationship between variables expressed in the numbers, using hot-fit model variables, namely humans (system use and user satisfaction), organization (structure and environment) and technology (system quality, information quality, and service quality) as well as the

benefits of SIMRS and testing several hypotheses that are it relates to the success rate of application of the system and the factors that influence it. The population in this study was 282 people. The sampling technique used is proportionate stratified random sampling. The determination of the number of samples in this study using the slovin formula obtained the number of samples to be taken in this study amounted to 165 people. And the informant determination technique is purposive sampling with six informants—data collection using questionnaires, interviews, observations, and library studies.

2.1. Model Human Organization Technology-Net Benefit (HOT-Fit)

The research model used in this study is the Human Organization Technology-Net Benefit (HOT-Fit). This model places important components in information systems, namely Humans (humans), Organization (Organization), and Technology (Technology), and the suitability of the relationship between them. Here is the HOT-Fit model shown in figure 1.

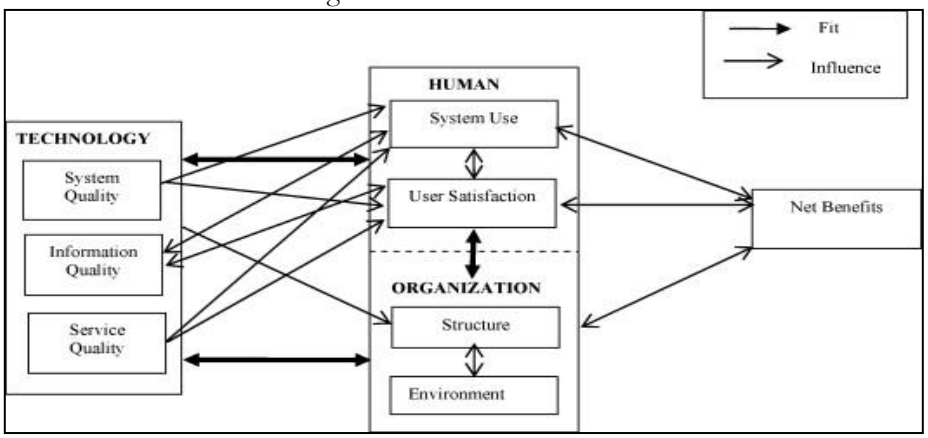

Figure 11 HOT-Fit Model

The framework of the HOT Fit theory is as follows:

1. Human
   a) System use: related to the frequency and breadth of system functions. The use of information output such as reports seems to be one of the most frequently taken actions to assess the success of information systems. The actual use of systems as a measure of information system success refers to voluntary rather than mandatory use. The use of the system also relates to the person using it, the level of its use, training, knowledge, trust, expectations, and acceptance or rejection [10].
   b) User Satisfaction: User satisfaction is often used to measure system success, and this is subjective because it depends on the satisfaction measure. User satisfaction is defined as the overall evaluation of the user

experience in using the system and the potential impact. User satisfaction can be attributed to the user's overall satisfaction, usability, comfort, and attitude towards the system influenced by personal characteristics [10].

2. Organization
   a) Structure: The nature of the organization can be checked from the organizational structure. The organizational structure consists of policies, objectives, culture, planning and control systems, strategies, management, and teamwork. Leadership, support from top management or top management, and the support of medical staff are also essential parts of measuring the system's success from organizational factors [10].
   b) Environment: The organizational environment can affect the performance of an organization itself. The organizational environment consists of an organization's communication can be analyzed through sources of financing, governance, organizational politics, localization, inter-organizational relations, population served, and communication.
3. Technology
   a) System Quality: associated with system performance. System quality in health settings measures the system's inherent features, including system performance and user interface. Examples of system quality measures are ease of use, ease of learning, response time, usability, availability, reliability, completeness, system flexibility, and security [10].
   b) Information Quality: A measure of the quality of information can be subjective, as it comes from the user's perspective. Criteria that can be used for the quality of the information in the system are completeness of information, the company of incoming data, accuracy, information format, timeliness, availability, relevance, consistency, reliability, and data entry [10].
   c) Service Quality: Service quality is related to the overall support provided by the system or technology service provider. Service quality can be measured through technical support, rapid response, assurance, empathy, and follow-up services [10].
4. Net benefit: The system can benefit a single user, a group of users, an organization, or an entire industry. The benefits capture a balance of positive and negative impacts on users, including managers and IT, staff, and system developers. The individual impact is the effect of information on the recipient's behavior. Personal benefits can be assessed using work effects, efficiency, effectiveness, decision quality, and error reduction [10].

2.2. Research Process

In this study, steps were carried out, starting from the data collection process to obtaining the results in this study. The stages in this study can be seen in figure 2. The stages of research that will be taken can be explained as follows:

1. **Identify organizational conditions**, namely conducting interviews about organizational conditions. Interviews are conducted to get an overview of the organization, such as organizational structure, number of SIMRS users, and business processes regarding the use of SIMRS, the object of research.
2. **Determination of Data Types and Sources**, There are four types of data needed, namely:
   a) The amount of data of Pusri Hospital employees is used to determine respondents.
   b) Profile data and organizational structure are used to understand job descriptions.
   c) SIMRS conditions are used to understand SIMRS workflows and identify existing issues.
   d) Questionnaires are used to find out the user's perception regarding the application of SIMRS.
3. **Population and Sample Determination**: This study's population is SIMRS users at Pusri Palembang Hospital, which amounts to 282 because there are too many populations, so sampling using the Slovin formula as many as 165 respondents and with a significance level of 0.05 (5%).
4. **Determination of Variables and Indicators** before making a questionnaire, researchers must determine the variables and indicators of the HOT-Fit model to be distributed to the research sample, using eight variables taken from the study[10] regarding the HOT-Fit evaluation model tailored to organizational conditions.
5. **Hypothesis determination**, hypothesis research is built from the conceptual framework of research. Through the conceptual framework of research, the interdimensional relationships used in the research will be seen. The interdimensional relationship will be the material for determining the research hypothesis. This initial hypothesis will help in answering research problems.
6. **Research Questionnaire** author uses questionnaires as research measuring instrument to find out the system's success rate and what factors affect the success of SIMRS. The research instruments used in this study are arranged based on the adaptation of questionnaire items used in previous studies. This study uses the HOT-Fit model by taking the constructs on the model as a gauge and research questionnaire items, and then the items are adjusted to the indicators and research objectives.
7. **Expert Validation Test: Before disseminating research questionnaires, an expert validation test is carried out first to determine the feasibility of the research questionnaire**. This study's expert validation tests use opinions and assessments from experts (expert judgment). The purpose of this validation is to obtain assessments, criticisms, and suggestions for improving research instruments so that the instruments are worth using. If the questionnaire is feasible, it can be continued to the implementation stage. But if it turns out that the test results are not feasible, then it is necessary to review

by making a new questionnaire statement (returning to the process of making questionnaires).

8. **Limited Test,** Research instruments tested and declared feasible based on expert assessments are then collected data to be tested by 30 employees of Pusri Palembang Hospital. After the data is collected, data testing is carried out. Data testing conducted includes validity tests and reliability tests using SPSS software. This test aims to find out that the data owned is reliable and valid. If later obtained data collected is not reliable or not valid, then action is needed until the data is reliable and valid. The actions taken can be either the removal of indicators or creating a re-questionnaire. However, if the data is reliable and valid, it can continue the research process or field tests throughout the research sample.
9. **After** a limited test was conducted on 30 respondents and the questionnaire was declared valid and reliable, the distribution of questionnaires to all research samples, namely employees of Pusri Palembang Hospital who use SIMRS, which amounts to 165 employees. After the questionnaire is collected, the results will be designed and processed to get the study's final results. From the results of this stage, the questionnaire recapitulation data will be obtained, and this data will also be processed later.
10. After recapitulation of questionnaires that have been collected from 165 respondents of SIMRS users, a descriptive statistical analysis of frequencies will be carried out based on eight variables of the HOT-Fit model using the MS. Excel 2016 number software.
11. **Data Analysis with Outer Model and Inner Model Testing,** Analyzing the collected data to miss the formulation of the proposed problem. Then, the result is an interpretation and explanation of the data that has been presented—quantitative data analysis with PLS-SEM using the SmartPLS 3.0 tool.
12. **Hypothesis Testing,** After evaluating the outer and inner models, testing will be carried out on the hypothesis. The estimates' results will provide information about the relationship between variables.
13. **Discussion of Research Results,** The results of this process are the results of research and explanations that help answer the problem of successful implementation of the hospital management information system at Pusri Palembang Hospital.
14. **Conclusions and Suggestions,** After the results of the study, then conclusions were made and gave suggestions or recommendations to Pusri Palembang Hospital in improving or also improving and optimizing the application of SIMRS.

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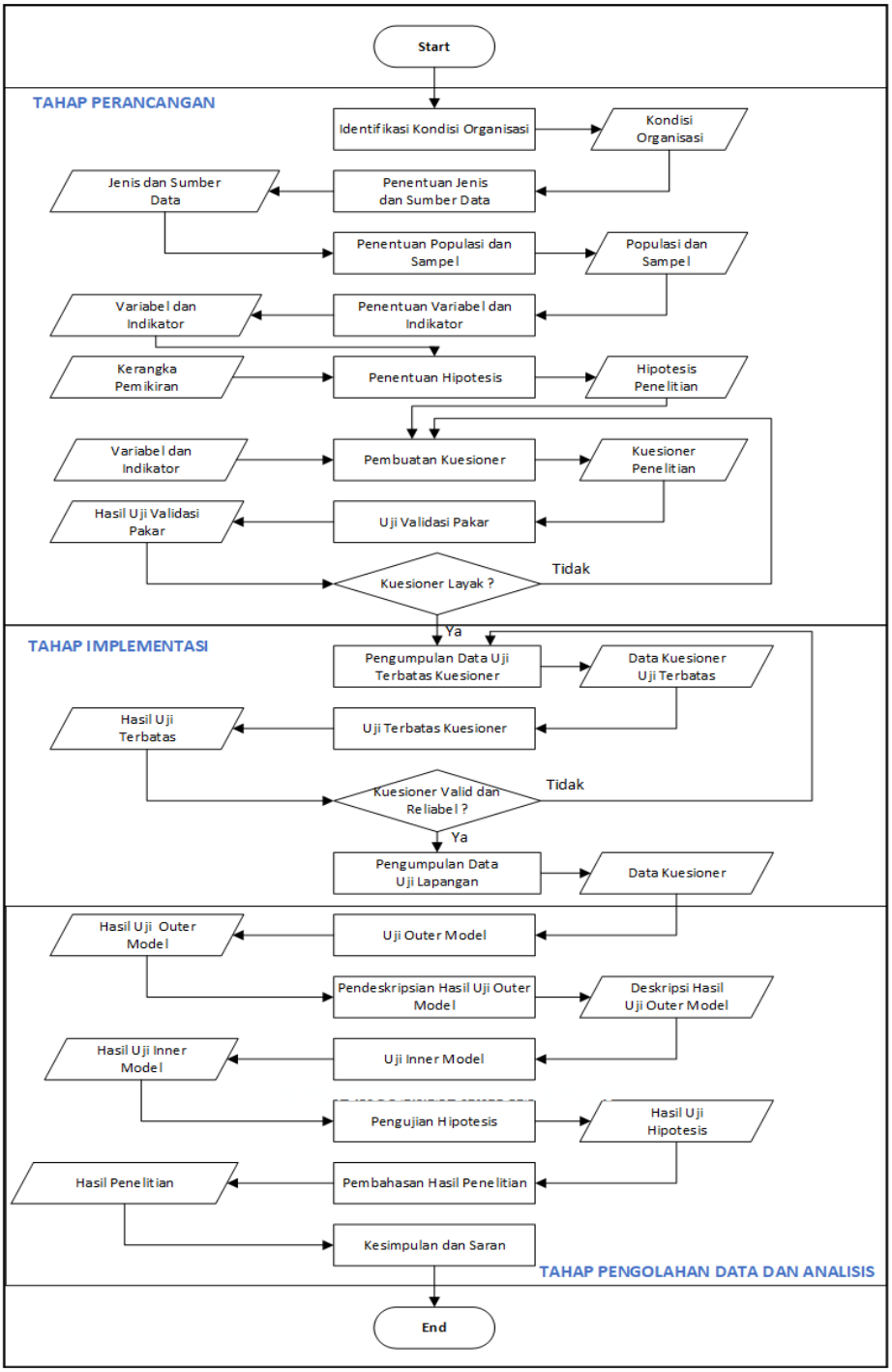

Figure 22 Research Stages

3. RESULTS AND DISCUSSION

This discussion explains the results of the evaluation carried out. This process results from research and explanations that help answer the problem of successful implementation of SIMRS and know the influence between variables related to the successful implementation of SIMRS at Pusri Palembang Hospital using the HOT-Fit model.

3.1 Characteristics of Respondents

Based on a study conducted on 165 respondents. Information is obtained about the characteristics of respondents consisting of gender, age, last education, work unit, and working period. Based on gender characteristics, respondents are primarily women, with a percentage of 76%. Most respondents were aged 31 to 35 years, with 30%. Based on the characteristics of the last education, it is known that most of the respondents are D3 graduates with a percentage of 58%. Most respondents on the characterization of the working period are 5 to 10 years with a percentage of 47%. Most respondents in this study came from the IGD and Pharmaceutical work units with a percentage of 9%.

3.2 Informant Characteristics

Based on the research conducted, information was obtained from research informants totaling six people, including 1 Kaur Medical Record, 1 Medical Record Staff, 1 Kaur SIMRS, 1 SIMRS staff, 1 Pharmacy Officer, 1 Polyclinic Nurse.

3.3 Expert Validation Test

In conducting the validation test, the expert is used an instrument validation sheet to obtain expert validation data that will be used to show the level of validity of the developed instrument. The aspects validated by experts include causal aspects, language aspects, and infographic aspects. The expert validation test will be conducted on five expert validators, namely employees of Pusri Palembang Hospital in the KOMINFO and Marketing work unit. From the recapitulation of validator answers, reliability results are known at 0.871 and validity of 100%. Then the questionnaire was declared worthy of use in the study.

3.4 Limited Test

The research questionnaire that has been declared feasible based on the validator assessment was then collected data to be tested on 30 employees of Pusri Palembang Hospital who had used SIMRS as a limited trial subject. Limited trials

were conducted to see if the question was feasible or not to be used as a questionnaire in this study. After the data is collected, the data testing process will be carried out. Among others, data testing is a validity test and reliability test using SPSS software.

3.5 Validity Test

The validity test determines the feasibility of the question items in a list (construct) of questions in defining a variable [11]. The validity test is performed using the Product Moment correlation technique in this study using a significant level of 5% so that the tabler is = 0.361. So that the significant level or r of the table is 0.361, and if the result r calculates > r table 0.361, then it is declared valid. The validity test results for the 30 respondents can be seen in Table 1.

Table 1 Test data validity with Product Moment

No.	Variable	Statement	r count	r table	Result
1.	System Quality (KS)	KS1	0,534	0,361	Valid
		KS2	0,668	0,361	Valid
		KS3	0,559	0,361	Valid
		KS4	-0,174	0,361	Invalid
		KS5	0,120	0,361	Invalid
		KS6	0,577	0,361	Valid
2.	Information Quality (KI)	KI1	-0,087	0,361	Invalid
		KI2	0,236	0,361	Invalid
		KI3	0,850	0,361	Valid
		KI4	0,776	0,361	Valid
		KI5	0,810	0,361	Valid
		KI6	0,648	0,361	Valid
		KI7	0,612	0,361	Valid
		KI8	0,689	0,361	Valid
3.	Quality of Service (KL)	KL1	0,108	0,361	Invalid
		KL2	0,579	0,361	Valid
		KL3	0,794	0,361	Valid
		KL4	0,644	0,361	Valid
4.	System Usage (PS)	PS1	0,256	0,361	Invalid
		PS2	0,630	0,361	Valid
		PS3	0,050	0,361	Invalid
		PS4	0,772	0,361	Valid
		PS5	0,759	0,361	Valid
5.	User Satisfaction (KP)	KP1	0,645	0,361	Valid
		KP2	0,813	0,361	Valid
		KP3	0,810	0,361	Valid
		KP4	0,829	0,361	Valid
		KP5	0,710	0,361	Valid
		KP6	0,672	0,361	Valid
6.	Structure (SO)	SO1	0,772	0,361	Valid
		SO2	0,808	0,361	Valid
		SO3	0,704	0,361	Valid
		SO4	0,697	0,361	Valid
		SO5	0,353	0,361	Invalid

		SO6	-0,128	0,361	Invalid
7.	Environment (LO)	LO1	0,371	0,361	Valid
		LO2	0,514	0,361	Valid
		LO3	0,724	0,361	Valid
		LO4	0,492	0,361	Valid
		LO5	0,127	0,361	Invalid
8.	Benefit (M)	M1	0,878	0,361	Valid
		M2	0,861	0,361	Valid
		M3	0,689	0,361	Valid
		M4	0,898	0,361	Valid
		M5	0,905	0,361	Valid
		M6	0,72	0,361	Valid

3.6 Reliability Test

Uji reliability aims to determine whether the data collection tool shows the accuracy, accuracy, stability, or consistency in revealing specific symptoms of this group of individuals, even if done at different times [11]. This reliability test uses Cronbach's alpha model. Pada Tabel 2 merupakan hasil uji reliabilitas instrumen dengan Cronbach's A Technique lpha berikut this:

Table 2 Reliability Test Results

Reliability Statistics	
Cronbach's Alpha	N of Items
.972	36

Dari instrumen soal yang dianalisis dengan bantuan komputer program SPSS, then hasil uji r eliabilitas diper obtained nilai Cronbach's Alpha 0.972 sehingga dapat disimpulkan value reliabil itas sangat tinggi.

3.7 Quantitative Research Results

The questionnaire was distributed to 165 respondents as SIMRS users. Previously the data was calculated to get results in the assessment, first a summary of respondents. The respondent's summary was carried out based on the HOT-Fit model consisting of system quality, quality of information, quality of service, system usage, user satisfaction, organizational structure, organizational environment, and benefits derived from the use of SIMRS. Here is a summary graph of the recapitulation of research variables.

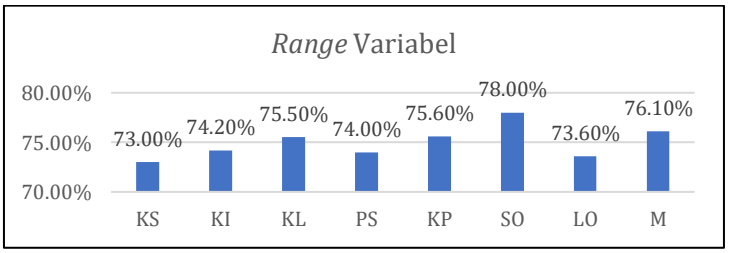

Figure 3 Research Variable Range Graph

From the range of these categories, the results of the distribution of the percentage of answers based on system quality variables are 73.0. From these results, it can be interpreted that users agree that the system quality in the Hospital Management Information System (SIMRS) has good system quality. Based on information quality variables is 74.2%. From these results, it can be interpreted that users agree that the Hospital Management Information System (SIMRS) provides quality, clear, accurate, relevant information following the needs seen in terms of information quality. Based on the variable, service quality is 75.5%. From these results, it can be interpreted that users agree that the services provided by the system provider are viewed in terms of service quality.

From the range of these categories, from the results of the distribution of the percentage of answers based on system usage variables is 74.0%. From these results, it can be interpreted that the user agrees with the use of the system applied to SIMRS. Based on the user satisfaction variable is 75.6%.

From these results, it can be interpreted that users agree and feel satisfied with using SIMRS. From the range of these categories, the distribution of the percentage of answers based on organizational structure variables is 78.0%. From these results, it can be interpreted that users agree with the applicable organizational structure of Pusri Palembang Hospital. Based on the organizational environment variable is 73.6%. From these results, it can be interpreted that users agree with the organizational environment of Pusri Palembang Hospital. Based on the variable benefits, 76.1% agreed that SIMRS applied at Pusri Palembang Hospital could benefit respondents (net benefit) because it has helped the daily work of officers in the Hospital.

3.8 Successful Implementation of SIMRS

They are determining the success rate of SIMRS requires points and variables obtained from the spread of 165 questionnaires. The results of responses from respondents can be seen in Table 3.

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Table 3 Each Variable Response Data

No.	Measurement	Strongly Disagree	Disagree	Simply Agree	Agree	Strongly Agree	Average
1.	KS1	4	12	45	70	34	3,72
2.	KS2	3	15	58	65	24	3,56
3.	KS3	5	8	40	86	26	3,70
4.	KS6	2	14	54	72	23	3,61
5.	KI3	3	9	48	71	34	3,75
6,	KI4	2	11	44	79	29	3,74
7.	KI5	5	12	48	71	29	3,65
8.	KI6	5	11	48	70	31	3,67
9.	KI7	5	11	41	75	33	3,73
10.	KI8	3	9	46	80	27	3,72
11.	KL2	3	11	39	78	34	3,78
12.	KL3	6	9	37	79	34	3,76
13.	KL4	5	11	37	75	37	3,78
14.	PS2	4	11	50	74	26	3,75
15.	PS4	4	12	45	71	33	3,71
16.	PS5	1	14	41	80	29	3,74
17.	KP1	2	10	38	79	36	3,83
18.	KP2	5	9	45	86	20	3,85
19.	KP3	2	8	49	67	39	3,81
20.	KP4	2	10	42	69	42	3,84
21.	KP5	3	13	43	74	32	3,72
22	KP6	2	8	39	81	35	3,84
23.	SO1	1	16	46	71	31	3,90
24.	SO2	0	14	39	69	43	3,85
25.	SO3	0	5	36	74	50	4,02
26.	S04	3	5	32	71	54	4,02
27.	LO1	2	8	54	73	28	3,71
28.	LO2	4	10	43	86	22	3,98
29.	LO3	1	15	47	72	30	3,80
30.	LO4	2	6	61	78	18	3,93
31.	M1	3	12	41	74	35	3,76
32.	M2	4	11	47	69	34	3,72
33.	M3	0	6	25	83	51	4,58
34.	M4	3	13	44	77	28	3,79
35.	M5	4	11	42	77	31	3,73
36.	M6	3	13	34	70	45	3,85

The response data of 165 respondents seen in Table 8 will be used to determine the information system validity percentage and generate the item's average value. The average total value of the item is 136.9 and will be used to measure the average weight of the item shown in Equation 1.

$$\text{average weight} - \text{average measurement items} = \frac{136,9}{36} = 3,8 \quad \text{..... (1)}$$

The next step is to find a percentage of success. The average weight of the measurement item is divided by the maximum value of the scale, which is five,

then multiplied by 100%. The division of success rates adopted from the studies [12] and [13] is shown in Equation 2.

$$\text{success percentage} = \frac{3,8}{5} \text{ x } 100\% = 76,1\% \text{ .....(2)}$$

Based on the analysis conducted on SIMRS, the value of the efficacy level is 76.1% and compared to the graph of the level of validity, 76.1% is at the level of 4 between 61% - 80%, i.e.,,, successful.

3.9 Quantitative Data Analysis using SEM-PLS

After passing the limited test stage of research instruments by testing the measurement of constructs and items using 30 samples, it is known that the results of the limited test stages of research instruments, namely construct and item measurements, have been declared valid and reliable. So that it can be continued into the expanded test stage by using a sample of 165 samples. The next step is the model specification by building a diagram path that manifests the interrelationship between exogenous and endogenous variables and the interrelationship between exogenous and endogenous variables to their respective indicators [14]. The design or specification of the model in this study utilizing SmartPLS software is observed in figure 4.

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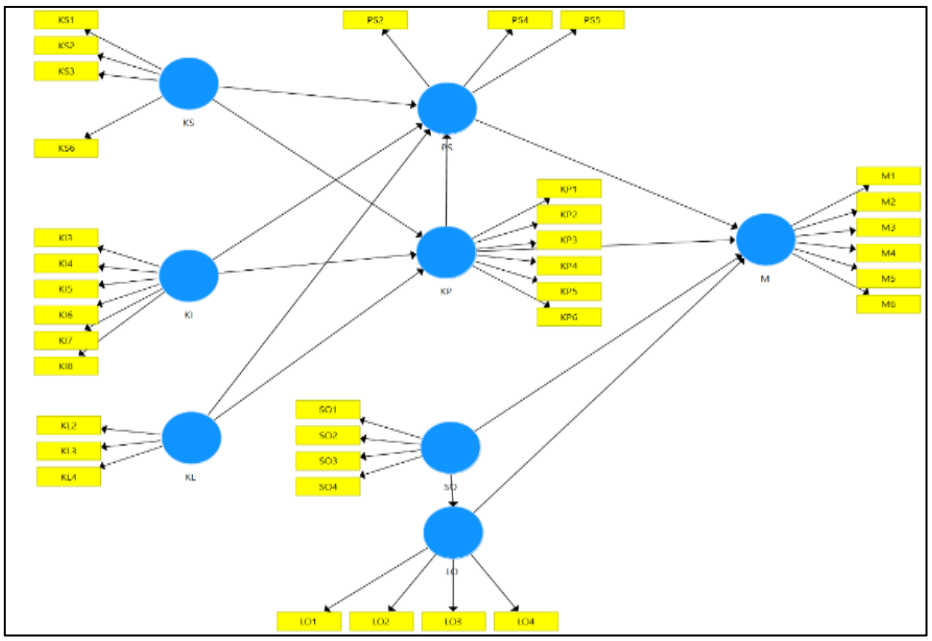

Figure 4 SEM PLS Model Design

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3.10 Outer Model

Outer model testing (measurement model) is performed to measure the validity and reliability of the model. Outer models with reflective indicators are tracked by looking at convergent validity, discriminant validity, composite reliability, and Cronbach's alpha values. The convergent validity of the outer model is valued based on the correlation between the indicator score and its construct. The value for the measurement must be above 0.70, and in the model test, the researcher used all the original samples of 165 samples from SIMRS users of Pusri Palembang Hospital. Figure 5 of the outer stage model using the entire sample is 165 samples using SmartPLS 3.0 software.

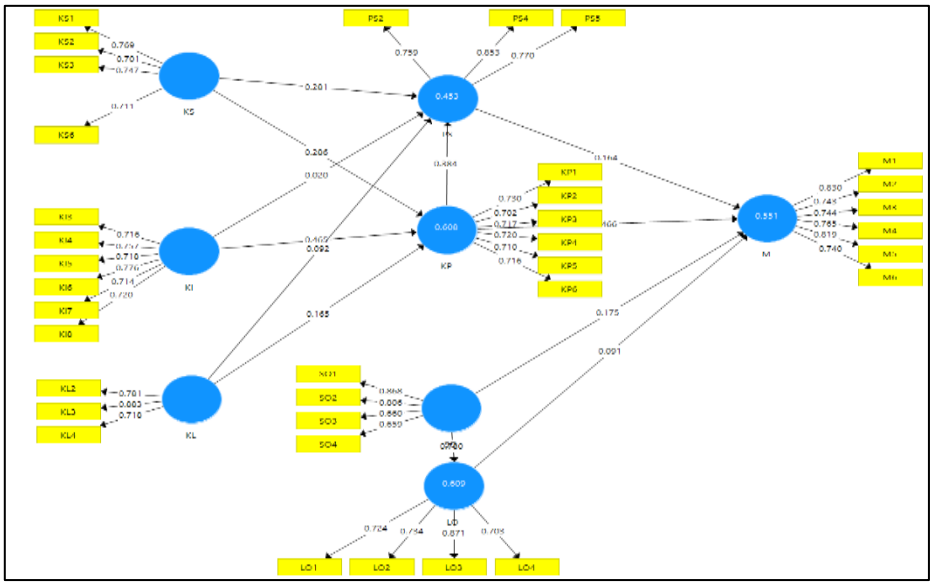

Figure 5 Execution of outer stage model

3.11 Convergent Validity

Individual reflective measures are set high when correlated more than 0.70 with the calculated variable. However, according to Chin, the initial research on developing the loading point measurement scale of 0.5 to 0.6 is still acceptable [15]. The following results of outer loading output with all original samples, as many as 165 samples using SmartPLS 3.0 software, can be seen in table 4.

Table 4 Outer Loading Output

	KI	KL	KP	KS	LO	M	PS	SO
KI3	**0,716**							
KI4	**0,757**							

KI5	**0,718**							
KI6	**0,776**							
KI7	**0,714**							
KI8	**0,720**							
KL2		**0,781**						
KL3		**0,883**						
KL4		**0,718**						
KP1			**0,730**					
KP2			**0,702**					
KP3			**0,717**					
KP4			**0,720**					
KP5			**0,710**					
KP6			**0,716**					
KS1				**0,769**				
KS2				**0,701**				
KS3				**0,747**				
KS6				**0,711**				
LO1					**0,724**			
LO2					**0,734**			
LO3					**0,871**			
LO4					**0,703**			
M1						**0,830**		
M2						**0,743**		
M3						**0,744**		
M4						**0,765**		
M5						**0,819**		
M6						**0,740**		
PS2							**0,759**	
PS4							**0,853**	
PS5							**0,770**	
SO1								**0,868**
SO2								**0,806**
SO3								**0,660**
SO4								**0,659**

Based on the outer loading output in table 4, it can be seen that the loading factor results of all indicators for each construct are already eligible for convergent validity. Then it can be concluded that the construct has good convergent validity.

3.12 Discriminant Validity

Discriminant validity of reflective indicators is assessed based on cross-loading between the indicator and its variables. A variable is valid if it has the most significant correlation to the intended variable. The following discriminant validity values can be seen in table 5 of the PLS Algorithm output for cross-loading.

Table 5 Output Cross Loading

	KI	KL	KP	KS	LO	M	PS	SO
KI3	0,716	0,522	0,511	0,519	0,313	0,547	0,400	0,408
KI4	0,757	0,452	0,631	0,373	0,290	0,532	0,363	0,359

KI5	0,718	0,482	0,530	0,382	0,371	0,502	0,427	0,484
KI6	0,776	0,390	0,542	0,366	0,315	0,569	0,376	0,388
KI7	0,714	0,583	0,472	0,352	0,347	0,555	0,360	0,375
KI8	0,720	0,369	0,471	0,355	0,258	0,512	0,290	0,370
KL2	0,498	0,781	0,399	0,331	0,233	0,432	0,312	0,329
KL3	0,557	0,883	0,525	0,420	0,301	0,560	0,363	0,397
KL4	0,459	0,718	0,477	0,350	0,251	0,527	0,419	0,296
KP1	0,429	0,380	0,730	0,479	0,224	0,403	0,461	0,319
KP2	0,506	0,417	0,702	0,635	0,339	0,478	0,488	0,447
KP3	0,658	0,434	0,717	0,384	0,259	0,586	0,375	0,343
KP4	0,662	0,516	0,720	0,375	0,202	0,550	0,344	0,289
KP5	0,422	0,411	0,710	0,361	0,155	0,423	0,487	0,302
KP6	0,389	0,379	0,716	0,376	0,202	0,460	0,546	0,312
KS1	0,347	0,278	0,369	0,769	0,273	0,342	0,424	0,352
KS2	0,354	0,302	0,428	0,701	0,237	0,390	0,474	0,368
KS3	0,395	0,337	0,492	0,747	0,236	0,384	0,390	0,325
KS6	0,461	0,438	0,488	0,711	0,333	0,502	0,377	0,371
LO1	0,248	0,208	0,160	0,211	0,724	0,308	0,325	0,512
LO2	0,363	0,300	0,294	0,214	0,734	0,309	0,256	0,496
LO3	0,420	0,368	0,344	0,418	0,871	0,457	0,449	0,802
LO4	0,248	0,072	0,150	0,215	0,703	0,248	0,222	0,480
M1	0,643	0,532	0,539	0,487	0,322	0,830	0,455	0,423
M2	0,560	0,527	0,481	0,445	0,367	0,743	0,456	0,515
M3	0,563	0,499	0,617	0,377	0,172	0,744	0,401	0,243
M4	0,481	0,480	0,477	0,382	0,488	0,765	0,513	0,504
M5	0,599	0,479	0,559	0,449	0,384	0,819	0,498	0,446
M6	0,545	0,473	0,489	0,437	0,345	0,740	0,395	0,427
PS2	0,311	0,289	0,437	0,436	0,283	0,371	0,759	0,365
PS4	0,461	0,488	0,598	0,463	0,361	0,525	0,853	0,458
PS5	0,421	0,305	0,439	0,463	0,375	0,488	0,770	0,427
SO1	0,428	0,384	0,357	0,430	0,831	0,473	0,460	0,868
SO2	0,520	0,344	0,433	0,449	0,540	0,453	0,507	0,806
SO3	0,293	0,174	0,308	0,206	0,365	0,319	0,315	0,660
SO4	0,379	0,353	0,332	0,327	0,496	0,400	0,278	0,659

Table 5 on the cross-loading output shows that the correlation between the construct and the indicator is higher than other construct correlations, indicating that there is good discriminant validity.

3.13 Composite Reliability

In addition to the construct validity test, a construct reliability test was also measured by two criteria: composite reliability and Cronbach's alpha. This test is a reliability test in the PLS that proves the accuracy and constant accuracy of a gauge in carrying out an assessment [16]. Variables are declared reliable if the composite reliability and Cronbach's alpha values are above 0.70.

Table 6 Values of Composite Reliability and Cronbach's Alpha

	Composite Reliability	Cronbach's Alpha
KI	0,875	0,829
KL	0,838	0,709

KP	0,863	0,810
KS	0,822	0,711
LO	0,845	0,759
M	0,900	0,866
PS	0,837	0,710
SO	0,838	0,745

Table 6 shows that Cronbach's alpha and composite reliability values are generated by all constructs above 0.70. So, it can be concluded that each of the constructs in the model has been estimated to have good reliability so that researchers can continue the next test.

3.14 Inner Model Testing

The structural model (inner model) is a pattern of intervariable relationships of research. Testing structural models by looking at the complexity of intervariable relationships and determination coefficient values (R-Square). The R-Square value is close to 1, with the value limit criteria divided into 3 classifications i.e. 0.67 = "strong" model, 0.33 = "moderate" model, 0.19 = "weak" model [15]. The R-square value of each endogenous variable from the model estimate in the table (R^2)7:

Table 7 Output R-Square

	R Square
KP	**0,608**
LO	**0,609**
M	**0,551**
PS	**0,453**

Table 7 shows that all four latent variables produce a value of 55.5% with the "moderate" model, the rest explained by other factors outside the model. Then a hypothesis check is carried out to find the coefficient of exogenous intervariable relationships for endogenous variables and endogenous variables for endogenous variables [17], the coefficient of intervariable relationships to reject or accept hypotheses seen through the bootstrap resampling method by looking at the correlation coefficient values (positive or negative) and the value of t-statistics. The hypothesis addressed is 1.96, as seen from the t-table, with a significant rate of 5%.

Table 8 Path Coefficient Values and T-Statistics

Hipotesis	Relationships Between Variables	Koef. line	T-Statistic	Conclusion
H_1	System quality has a significant effect on system use	0,281	2,832	Significant
H_2	System quality has a significant effect on user satisfaction	0,286	4,339	Significant

H_3	The quality of information has a significant effect on the use of the system.	0,020	0,238	Insignificant
H_4	The quality of information has a significant effect on user satisfaction.	0,465	6,917	Significant
H_5	Quality of service has a significant effect on the use of the system	0,092	1,139	Insignificant
H_6	Service quality has a significant effect on user satisfaction	0,165	2,373	Significant
H_7	User satisfaction has a significant effect on system usage	0,384	3,769	Significant
H_8	Organizational structure has a significant effect on the organizational environment	0,780	26,733	Significant
H_9	The use of systems has a significant effect on the benefits	0,164	2,090	Significant
H_{10}	User satisfaction has a significant effect on benefits	0,466	6,093	Significant
H_{11}	Organizational structure has a significant effect on benefits	0,175	1,751	Insignificant
H_{12}	The organizational environment has a significant effect on the benefits	0,091	1,131	Insignificant

Based on the results of hypothesis testing, it can be known that the hypotheses accepted in this study are H_1, H2, H_4, H6, H7, H8, H9, and H_{10}. Meanwhile, hypotheses that cannot be accepted or rejected consist of H3, H5, H_{11}, and H_{12} because the t-statistical value calculates less than the value of the t-table.

3.15 Qualitative Research Results

1. System Quality

Based on interviews with research informants, the system's quality at Pusri Palembang Hospital for software use is good, only there is a network disruption and needs a system upgrade. Hardware is sufficient for units whose systems are already running well. The existing network is pretty good, but the server is sometimes slow at times. Networks in several work units such as pharmaceutical units, nutrition, and procurement often occur this problem because hospitals use LAN networks. So there are often network disruptions that cause delays in data input. SIMS performance applied still needs improvement because the system used is too complicated. SIMRS' ease of use is easy to learn but challenging to use because there are too many steps.

2. Information Quality

Based on the in-depth interviews conducted, information was obtained that there was long data, such as patient data, and incomplete data because some units were still not optimal in using SIMRS. Based on the interview results, it was obtained that the information generated by SIMRS was accurate.

3. Quality of Service

Based on the results of interviews that have been conducted, the informant stated that the work goes well if using SIMRS, but it needs some improvements to the system to make it more maximal.

4. System Usage

Based on the results of interviews that researchers conducted related to the use of hospital management information systems used at Pusri Palembang Hospital is quite good and help in the implementation of activities. Although it has been running well, there are still some obstacles, such as using a system that is not user-friendly, complicated systems, and some improvements are needed in some units in the Hospital.

5. User Satisfaction

Based on the results of interviews that researchers conducted related to users' satisfaction with the hospital management information system used at Pusri Palembang Hospital, some are satisfied and not so satisfied with SIMRS because many things must be done to be improved. SIMRS, in its implementation, is enough to help in the processing of information in hospitals. However, SIMRS is still not maximally helpful in information processing in some units, such as pharmaceutical units. The implementation of SIMRS at Pusri Palembang Hospital is that not all officers have a background following the information system but have been given training related to information systems to increase officer knowledge regarding information systems.

6. Organizational Structure

Based on the interviews, researchers planning the implementation of SIMRS at Pusri Palembang Hospital are following the rules. Planning starts from the implementation of system development to system evaluation, and planning requires several parties involved, including the director, all TPJP, management department, IT unit, vendor, Head of Room, and Karu Policlinic. The application of SIMRS should help coordination between units be well established, but Pusri Palembang Hospital is not well established.

7. Organizational Environment

Planning is needed in organizations, but support from top management is also needed. At Pusri Palembang Hospital, the implementation of SIMRS has support from Top Management in initiation, funds, moral support, sheltering complaints about using SIMRS, and repairing damaged devices.

8. Benefit

Based on the results of interviews conducted with informants, it is known that the application as an information system helps implement daily work. It is known that

the application of SIMRS as an information system improves the efficiency of the work of officers using SIMRS.

4. CONCLUSION

Based on the results of quantitative research, it can be known that :

1. In the technology component, the system's quality obtained a result of 73.0%, and the quality of the system is good. The quality of information obtained results of 74.2%, and the quality of information is good. The resulting information is accurate, quality, and relevant. A result of 75.5% obtained service quality, the quality of service was good. The service provider responds well in case of damage to the system.
2. In the human component, the system's use obtained a result of 74.2%. This explains that the user has received well the application of the information system and used it when providing services in the Hospital. For user satisfaction, 75.6% of users were satisfied with using SIMRS.
3. In the organizational component: the organizational structure obtained a result of 78.0%. This explains that the organizational structure in implementing SIMRS in hospitals has been planned both in terms of the facilities provided. This is also due to the support from management towards the implementation of SIMRS in hospitals. In the organizational environment, 73.6% explained that the support from the organizational environment was good.
4. The benefits of information systems can be seen in terms of effectiveness and efficiency in helping officers complete their tasks. A total of 76.1% of users already feel SIMRS can help improve the efficiency and effectiveness of officers in work. Following the results of these values, it can be concluded that the success rate of SIMRS implementation at Pusri Palembang Hospital is 76.1%. The research results show that the system's existence helps the user support his work and the successful use of the system from the user's perception currently at the level of success.
5. Eight variable relationships were affected significantly, and four relationships had no significant effect in this study.
6. Judging from the degree of correlation, the most significant variable in the evaluation of sites application is the influence between organizational structure variables on the organizational environment, with an at-statistical value above 1.96, which is 26,733. In addition, some variable relationships have no significant effect on other variables, such as in information quality variables against system usage, whose correlation rate is lowest in this study with an at-statistical value below 1.96, which is 0.238. In terms of information quality, although the information generated by SIMRS is incomplete, not detailed, and not yet following users' needs in using SIMRS, users still use SIMRS periodically.

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