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Assessing Hospital Management Information Systems Success Using Human Organization and Technology Fit Model

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***Abstract*—Arsani Hospital has implemented Hospital Management Information Systems since 2010 to support operations to improve services, work effectiveness, and efficiency. However, in its implementation, there are obstacles such as the seldom use of Hospital Management Information Systems and employees' lack of knowledge. Also, the appearance of Hospital Management Information Systems is challenging to understand, and Hospital Management Information System has not been integrated (BPJS system, attendance, and employee payroll). In addition, there are queues in the administrative process. To ensure Hospital Management Information Systems can achieve the expected targets, its necessary to evaluate the success of the implementation as quantitatively using the HOT-Fit (Human Organizational and Technology Fit) model. The model focuses on three dimensions, namely human (system development, user satisfaction, system use), organization (organizational structure, organizational environment), and technology (quality systems, information quality, service quality). This study aims to determine the factors that influence Hospital Management Information Systems implementation success rate at Arsani Hospital using a questionnaire. A total of l99 respondents were obtained by analyzing PLS-SEM data using SmartPLS v3.3 software. The results showed that of the 18 hypotheses developed, 11 were accepted, while the other seven were rejected. The output of this research is given several recommendations which are intended to increase the success rate of Hospital Management Information Systems at Arsani Hospital.**

***Index Terms*: Hospital Management Information Systems, evaluation, success, HOT-Fit.**

I. INTRODUCTION

The development of information and communication technology is currently very rapid. It plays an essential role in people's lives, one of which is the health sector. It can be seen from the construction of a Hospital Management Information System (HMIS) to support hospital activities in improving the quality of service and improving the effectiveness and efficiency of work which can accelerate performance. The practical implementation and management of HMIS in hospitals are significant because they can be the basis for obtaining a competitive advantage [1]. From the implementation of HMIS, users can use the results of information to make decisions to improve health care efforts in the form of reports.

Arsani Hospital has been implementing and managing HMIS using Avicenna-Hospital information System vendors since 2010 to improve service quality, coordination, efficiency, accountability, monitoring, and rapid delivery of information. Nevertheless, there are various problems in its application, such as the seldom use of HMIS and the lack of employee knowledge in using HMIS. Also, the HMIS display is difficult to understand. Furthermore, HMIS has not been integrated (BPJS system, attendance land employee payroll), and there is a build-up of queues in the patient administration process. According to Arsani hospital employees, there are still employees who do not understand and understand how to use HMIS, so there are many errors when applying the system, such as in the registration service system and billing system. In this service, there is often duplication of data and inaccuracies of patient data. In addition, some installations do not use HMIS provided regularly by hospitals, such as in logistics and nursing installations. In logistics installations, employees have used but not all of the features used by this installation. Similarly, Nursing and for Nursing management in doing activities and reporting still use Microsoft Excel. Moreover, there is also still a build-up of queues in inpatient administration.

To ensure HMIS can achieve the expected target, authors need to evaluate the implementation of HMIS by measuring the success rate of HMIS implementation in Arsani Hospital. This evaluation needs to be done as a benchmark for whether HMIS is acceptable and said to be successful by users to support improving the quality of service at Arsani Hospital [1]. With evaluation, the achievement of activities on the implementation of HMIS can be immediately identified, and further actions can be planned to improve the performance of its implementation. This evaluation will undoubtedly assess, measure, and improve or improve HMIS in finding potential problems facing users and hospitals. The results of the assessment HMIS success as a reference for Arsani Hospital to improve or expand HMIS and develop the remaining potential, so that it can be helpful for hospitals in improving performance in hospital services in a better direction, and can support the purpose, vision, and

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mission of the hospital. So that the solution is offered in this evaluation using the Human Organization and Technology (HOT) Fit model.

The HOT Fit model is a system evaluation model that places important l components in information systems, namely Human, Organization, and Technology, and the conformity of relationships among them in looking for factors that affect the success of information systems [2]. The HOT Fit model is a combination of l the Delone & Mclean Information System Success Model with the IT-Organization Fit. The relationship between humans, organization, and technology has a relatively strong and positive relationship and has a close and direct relationship with the net benefits [2].

II. Related Work

Related research that uses the HOT-Fit model, including those that test hot-fit models on drug driver's licenses in pharmaceutical installs RSGMP Unsoed Purwokerto uses the SPSS program to test the validity and reliability which results in that system quality, information quality, quality of service, user satisfaction and Net benefit positively affect system use; System quality, information quality, service quality, system use, and Net benefit positively affect user satisfaction; System use and user satisfaction positively affect the quality of information; Technology and organizational environment positively affect the organizational structure; Organizational structure positively affects the organizational environment; System use and user satisfaction have a positive effect on net benefits; Net benefits have a positive effect on the organization; Organizations have no influence on net benefits [3]. In another study, evaluating the implementation of HMIS using the HOT-Fit model at Dr. Soedirman Kebumen Hospital using the help of SmartPLS which resulted in the successful implementation of HMIS RSUD Dr. Soedirman Kebumen influenced by variable quality variables, service quality, use of variables, user satisfaction and benefits. User satisfaction is the variable that exerts the most influence [4].

III. Research Method

This study used quantitative methods with the help of surveys (questionnaires) to analyze and determine the success rate of HMIS implementation in Arsani Hospital using the Human Organization and Technology (HOT) Fit model. The time-collection approach uses cross-sectional (data taken over a period of time to give an idea of the development of an object or event). The sampling technique is done randomly (simple random sampling) by distributing questionnaires to employees l as HMIS users at Arsani Hospital. The object of the study was HMIS Arsani Hospital, with its research subjects, namely all medical and non-medical, as HMIS users of Arsani Hospital, which amounted to 131 employees. Therefore, the study used 99 employees of Arsani Hospital as the number of samples to be examined. The number of samples was obtained using the Slovin Technique with an error rate of 5% due to the assistance of distributing questionnaires that represent only a portion of the population at Arsani Hospital.

$$n = \frac{N}{N \times d^2 + 1},\ d = 5\% = 0.05 \quad (1)$$

$$n = \frac{131}{131 \times (0.05)^2 + 1} = 98.68 \Rightarrow 99$$

The research framework can be seen in the following Fig. 1.

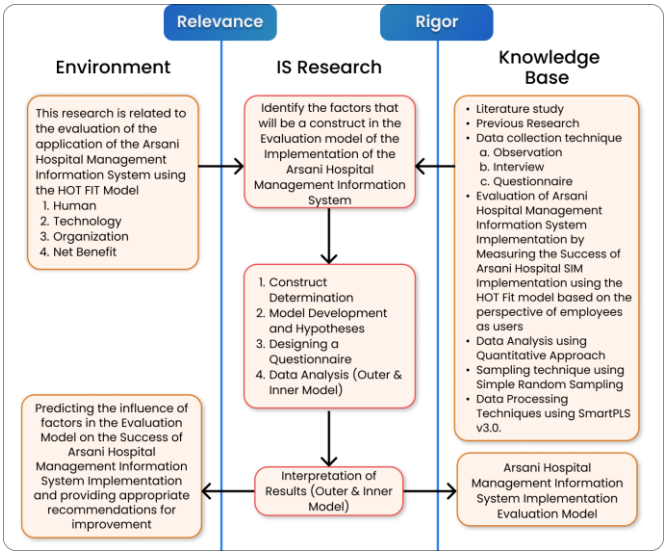

Fig. 1. Research framework

The Human Organization and Technology (HOT) Fit model adopted by [2] consists of 9 variables: System Quality, Information Quality, Service Quality, System Use, User Satisfaction, System Development, Organizational Structure, Organizational Environment, and Net Benefit used in this study. The HOT Fit research model can be seen in the following Figure 2.

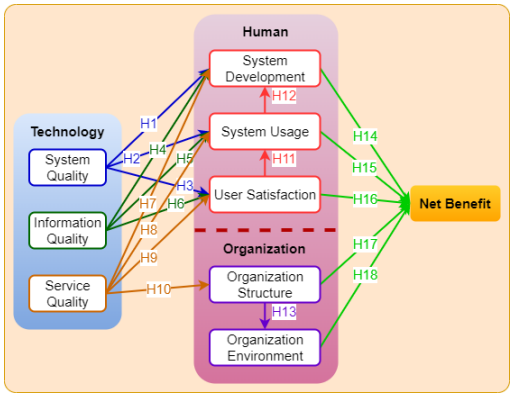

Fig. 2. HOT Fit research model

A. Human

Ref. [2] stated that the human component assesses information systems from various aspects [2].

1) System use is related to frequency and breadth of use in information system investigation [5]. System use also includes who uses it, the level of its users (level of user), training, knowledge, expectations, and attitudes to accept (acceptance) or reject the system.

2) User satisfaction, it is an overall assessment of the user experience in using information systems, and the potential impact of information systems [5]. User satisfaction with the

system can be attributed to the user's benefit perspective and attitude towards the information system, which is influenced by personal characteristics.

3) System development, cover planning, project management, project schedules, and relationships with IT strategies to build a highly collaborative system environment to maximize the efficiency and accuracy of project monitoring are pretty successful [5].

B. Organization

The organizational component assesses the system implemented from the following aspects [5]:

1) The organizational structure, reflects the agency's state, culture, politics, hierarchy, autonomy, planning and control systems, strategies, support from top management, leadership, staff support and communication.

2) The organizational environment covers sources of financing, government policy, politics, competition, interorganizational relations, and communication [6][7].

C. Technology

The Technology Component assesses the system implemented from the following aspects:

1) System quality correlates with system features, including system performance and user interface—ease of use, study, response time, usability, availability, flexibility, and security.

2) Information quality resulting information criteria are completeness, accuracy, punctuality, availability, relevance, consistency, and data entry.

3) Service quality focus on the overall support provided by the system or technology service provider. Service quality can be assessed by the speed of responsiveness, assurance, empathy, and service follow-up [5].

D. Net Benefit

A balance between positive and negative impacts users (medical workers, managers, non-medical employees, system developers, and all related parts). Net Benefit can gain access to immediate benefits, business impact, efficiency and effectiveness, error reduction, communication, and cost and expense control. The higher the positive impact, the more successful the information system implementation.

The indicators used in this study are adapted from previous research, where each variable has indicators to make it easier to analyze [2]. The definition of indicators from research variables can be seen in the following Table 1.

Table 1.
Definition of indicators from research variables

Variable	Indicator	Definition	Code
System Quality (SQ)	Data Accuracy	HMIS has accurate data as needed	QS1
	User Friendly	The appearance that HMIS has is simple so that it is easy for users to understand	QS2
	Ease of Learning	HMIS is easy for users to learn	QS3
	Accessibility	Users easily access HMIS	QS4
	Integration	Between sub-systems one and the other sub-systems are interrelated	QS5
	Response Time	Short HMIS response time when used	QS6
Information quality (IQ)	Relevancy	Information displayed by HMIS relevant to the user	IQ1
	Usefulness	The information that HMIS has is very useful for its users.	IQ2
	Data Conciseness	Information displayed by HMIS Short, dense and clear	IQ3
	Data Reliability	Information that HMIS has is reliable	IQ4
	Timeliness	Information provided by HMIS up to date	IQ5
Service quality (SEQ)	Technicalsupport	HMIS already has a service with appropriate technical support when needed	SEQ1
	Responsiveness	HMIS serves users with a quick response	SEQ2
	Assurance	Guarantee of protection in managing the system has been owned by HMIS	SEQ3
User satisfaction (US)	Overall Satisfaction	Users are satisfied with the entire HMIS	US1
	Perceived Usefulness	Users benefit from the existence of HMIS	US2
	Satisfaction with Software	Supporting software used to access the system has an effect on the satisfaction that the user has.	US3
System use (SU)	Attitude	User ethics in using HMIS	SU1
	Training	Use of HMIS applied in accordance with training and guidebooks	SU2
	Skill	HMIS is used according to the level of ability users have	SU3
	Amount of Use	HMIS has been used regularly.	SU4
	Motivation to Use	HMIS is used in accordance with the motivation for its use	SU5
	System Acceptance	The use of HMIS can be easily accepted by users	SU6
System development (SD)	Planning	Define the purpose and scope of HMIS development	SD1
	Project Management	HMIS is in HMIS management	SD2
	Project Scheduling	The time HMIS has scaled to maintain and evaluate	SD3
	Relationship with IT Strategy	HMIS development in accordance with IT strategy	SD4
Organization structure (OS)	Top Management Support	Support from top management in system implementation already owned by HMIS	OS1
	Leadership	HMIS has been supported by the	OS2

		organization's leadership attitude to the fullest.	
	Teamwork	HMIS is supported by human resources who cooperate with each other in its application.	OS3
	Strategy	Support a good organizational strategy has been owned by HMIS	OS4
	Staffing	Staffing arrangements are already good in the management of HMIS	OS5
	Staff turnover	HMIS can store and manage employee knowledge so that the hospital continues to run well.	OS6
Organization environment (OE)	Government	Government policy in the organization has been running optimally.	OE1
	Politics	The implementation of HMIS is in accordance with the conditions, needs and expectations of the organization environment.	OE2
	Inter-organizational system	The internal environmental conditions of the organization affect the acceptance of HMIS	OE3
Net Benefit (NB)	Job effect	HMIS can help users work	NB1
	Productivity	Increase user productivity	NB2
	Workload	HMIS can reduce user workload	NB3
	Effectiveness	HMIS is effective in Use	NB4
	Decision Making	HMIS helps make decisions	NB5
	Error	HMIS helps reduce errors in employment reports	NB6
	Cost	Reduce the organization's spending budget	NB7

From Figure 2 and Table 1, it can be developed research hypotheses as follows.

H1 : System quality affects development system.
H2 : System quality affects system usage.
H3 : System quality affects user satisfaction.
H4 : Information quality affects development system.
H5 : Information quality affects system usage.
H6 : Information quality affects user satisfaction.
H7 : Service quality affects development system.
H8 : Service quality affects system usage.
H9 : Service quality affects user satisfaction.
H10: Service quality affects organization structure.
H11: User satisfaction affects system usage.
H12: System usage affects system development.
H13: Organization structure affects organization environment.
H14: System development affects net benefit.
H15: System usage affects net benefit.
H16: User satisfaction affects net benefit.
H17: Organization structure affects net benefit.
H18: Organization environment affects net benefit.

IV. RESULT

This study has conducted using the Partial Least Square (PLS) based Structural Equation Model (SEM) approach, which was carried out into the following three steps:

A. Demographic Analysis (Quantitative Descriptive)

Demographic analysis is conducted to find out the characteristics of respondents (HMIS users). The demographic analysis can be seen in the following Table 2.

Table 2.
Demographic Analysis of Respondent Characteristics

Category	Information
Gender	35.4% male; 64.6% of women.
Age	1% less than 20 years; 41.4% 21 - 30 years; 51.5% 31 – i40 years; and 6.1% over 40 years
Division	78.8% medical; 21.2% non-medical.
Intensity of HMIS use in 1 week	34.3% less than 5 times; 52.5% 5 - 10 times; 3% 11 - 15 times; and 10.1% more than 15 times.
Assessment of the successful implementation of HMIS	25.3% is good enough; 61.6% good; And 13.1% is very good.
Assessment of the role of HMIS implementation	29.3% is good enough; 55.6% good; and 15.2% is very good.

B. Outer Model Analysis (Measurement Model)

Conducted to assess the validity and reliability of the model to prove and know the valid or not relationship between the contract (variable) and its indicators.

- Individual Item Reliability Test

  Done to see the small value of standardized loading factor correlation between each indicator and its variable [4][6-10]. The loading factor value must be greater than 0.7 to be valid. The results of individual item reliability testing using SmartPLS software can be seen in the following Table 3.

Table 3.
Individual Item Reliability

Var	Ind	OL	Var	Ind	OL
QS	QS1	0.734	SU	SU5	0.786
	QS2	0.857		SU6	0.710
	QS3	0.777	US	US1	0.873
	QS4	0.795		US2	0.904
	QS5	0.723		US3	0.890
	QS6	0.741	OS	OS1	0.800
IQ	IQ1	0.779		OS2	0.859
	IQ2	0.832		OS3	0.822
	IQ3	0.824		OS4	0.747
	IQ4	0.778		OS5	0.779
	IQ5	0.719		OS6	**0.697**
SEQ	SEQ1	0.887	OE	OE1	0.801
	SEQ2	0.783		OE2	0.898
	SEQ3	0.843		OE3	0.826
SD	SD1	0.900	NB	NB1	0.745
	SD2	0.896		NB2	0.816
	SD3	0.932		NB3	0.796
	SD4	0.917		NB4	0.872
SU	SU1	0.707		NB5	0.781
	SU2	**0.652**		NB6	0.733
	SU3	0.848		NB7	**0.522**
	SU4	0.791			

Based on Table 3 obtained, the results of 43 questions developed, there are 40 valid questions and three invalid questions. Therefore, the three questions were removed after

deleting invalid questions and retesting them until all questions/indicators were valid.

- Internal Consistency Reliability Test

It was done to test the reliability value of indicators on a construct. A construct or variable has met composite reliability when it has a value bigger than 0.7 [4][6][7][11]. The results of internal consistency reliability testing using SmartPLS software can be seen in the following Table 4.

Table 4.
Uji Internal Consistency Reliability

Variable	Composite Reliability	Information
IQ	0.891	Reliable
NB	0.912	Reliable
OE	0.879	Reliable
OS	0.906	Reliable
QS	0.898	Reliable
SD	0.951	Reliable
SEQ	0.877	Reliable
SU	0.885	Reliable
US	0.919	Reliable

Refer to Table 4, and it can be concluded that the nine variables used in this study have met reliable Composite Reliability standards.

- Average Variance Extracted (AVE)

It measures the diversity of indicators that can be contained by a variable or construct by adjusting the error rate. The recommended minimum AVE is 0.50 [4][6][7][11]. Here are the results of Average Variance Extracted using SmartPLS software can be seen in the following Table 5.

Table 5.
Average Variance Extracted (AVE)

Variable	Average Variance Extracted (AVE)	Information
IQ	0.620	Valid
NB	0.636	Valid
OE	0.709	Valid
OS	0.659	Valid
QS	0.597	Valid
SD	0.831	Valid
SEQ	0.704	Valid
SU	0.607	Valid
US	0.791	Valid

Refer to Table 5, it can be concluded that the nine variables used in this study have met the standard of valid Average Variance Extracted (AVE).

C. Inner Model Analysis (Structural Model)

It was done to be able to know the relationship between latent variables.

- Path Coefficient Test (β)

Accomplished by looking at threshold values above 0.1 in order to state that the path influences the model [14][6][7][12]. Here are the results of path coefficient testing using SmartPLS software can be seen in the following Table 6.

Table 6.
Path Coefficient

Relationship between variables	β	Information
IQ → SD	0.322	significant
IQ → SU	0.244	significant
IQ → US	0.287	significant
OE → NB	**0.060**	not significant
OS → NB	**-0.025**	not significant
OS → OE	0.567	Significant
QS → SD	**-0.284**	not significant
QS → SU	**0.057**	not significant
QS → US	**0.067**	not significant
SD → NB	0.116	significant
SEQ → OS	0.611	significant
SEQ → SD	**0.054**	not significant
SEQ → SU	0.500	significant
SEQ → US	0.550	significant
SU → NB	0.474	significant
SU → SD	0.418	significant
US → NB	0.252	significant
US → SU	**0.045**	not significant

Referring to Table 6, it has known that of the 18 paths in this research model, seven paths have a not significant influence because they are below the threshold of 0.1.

- Coefficient of Determination Test (R^2)

It explains the variant of each endogenous variable target (variables considered to be influenced by other variables in the model) with standard measurements above 0.670 declared strong; 0.333 - 0.670 declared moderate; 0.190 - 0.333 declared weak; and 0.190 down indicating a very weak variant level [4][6][7][11]. The results of the Coefficient of Determination or R^2 test using SmartPLS software can be seen in the following Table 7.

Table 7.
Coefficient of Determination

Endogenous Variables	R-Square	Information
Net Benefit (NB)	0.555	Moderate
Organization Environment (OE)	0.321	Weak
Organization Structure (OS)	0.373	Moderate
System Development (SD)	0.345	Moderate
System Usage (SU)	0.587	Moderate
User Satisfaction (US)	0.672	Strong

Based on Table 7, the results can be seen R^2 from Net Benefit, Organization Structure, System Development and System Usage has a moderate effect because it has a value of R^2 between 0.333-0.670. Then, R^2 from Organization Environment is weak because it has an R^2 value between 0.190 - 0.333. Moreover, R^2 from User Satisfaction is strong because the value of R^2 is above 0.670.

- t-test

T-test is conducted by the bootstrapping method through a two-tailed test with the significant rate used to test hypotheses in research of 5% [6][7][13]. This test is done by comparing the value of t-count to the value of t-table (t-table = 1.96), if the value of t-count is greater than t-table then the hypothesis is accepted. Here are the results of hypothesis testing with t-test using SmartPLS software can be seen in the following Table 8.

Table 8.
t-test

Relationship between variables	t-count	Information
IQ → SD	2.076	Accepted
IQ → SU	2.153	Accepted
IQ → US	2.743	Accepted
OE → NB	0.662	**Rejected**
OS → NB	0.187	**Rejected**
OS → OE	8.808	Accepted
QS → SD	2.421	Accepted
QS → SU	0.654	**Rejected**
QS → US	0.691	**Rejected**
SD → NB	0.987	**Rejected**
SEQ → OS	7.497	Accepted
SEQ → SD	0.382	**Rejected**
SEQ → SU	4.099	Accepted
SEQ → US	6.824	Accepted
SU → NB	3.456	Accepted
SU → SD	3.457	Accepted
US → NB	2.304	Accepted
US → SU	0.418	**Rejected**

As shown in Table 8, it is known that of the 18 hypotheses proposed, there are 11 hypotheses busted above the value of t-table (t-table = 1.96) so that the eleven hypotheses in this study are accepted.

Information quality affects system development, system use, and user satisfaction. The effects are following previous research [2][3][8][9][10], where information quality presented in the system can assist developers in developing and increasing system use and user satisfaction in using the system.

1) The organizational structure affects the organizational environment; this is following previous research [2][6][7][10][14] where the existing organizational structure at Arsani Hospital has a positive impact on organizational performance.

2) System quality affects system development; this is supported by previous research [2][6][10][15] that the higher the information quality of information systems, the lower information system development.

3) Service quality affects the organizational structure; this is following previous research [2][6][7][10] where service quality provided by HMIS Arsani Hospital has a positive impact on performance within the organization.

4) Service quality affects system usage; this is following previous research [2][6][16][17] that the better service quality of a system, the higher the level of system usage. Service quality can be interpreted as something related to the fulfillment of user needs; service can be said to be of quality if it can provide products and services that follow the needs and desires of users [18].

5) Service quality affects user satisfaction; this is following previous research [2][3][4][6][7][19] where the service quality provided by HMIS RS Arsani makes respondents who use it feel satisfied and helped in doing their jobs. Service quality reflects how the system provider is reliable, responsible, and has empathy for its users.

6) System usage affects net benefit; this is supported by previous research [2][3][6][7][19] that the higher system usage, the higher the results of the usefulness of using the system. Therefore, users can feel the benefits of using HMIS, among others. With this, HMIS can help users complete their daily work, increase effectiveness and efficiency as well as productivity, and assist users in achieving their goals.

7) System usage affects system development; this is following previous research [10] that the use of HMIS affects the development of information systems where the higher the use of the system, the higher the information system development efforts that will be carried out.

8) User satisfaction affects net benefits; this is supported by previous research [2][3][7][13][19] that the higher the level of user satisfaction, the higher the results of usefulness in using the system. Users can feel the benefits of using HMIS, among others. This HMIS can help users complete their daily work, increase effectiveness, efficiency, and productivity, reduce workload, and assist users in achieving their goals. A system that is often used will show that the system is better known so that users feel the system will be easier to operate and use. Of course, if the user feels the system is easy to use, then this will bring satisfaction to the user.

While the other seven hypotheses are below the value of the t-table (t-table = 1.96), the seven hypotheses in this study are rejected.

1) The organizational environment does not affect net benefit; this aligns with research [20] that the organizational environment cannot directly increase the system user's perception of the benefits (net benefits). The encouragement from the organizational environment can only significantly motivate users to use the system [21]. After users are motivated to use the system, they will be able to increase the perception of usefulness (net benefit), and technological factors must still be developed and improved in quality.

2) Organizational structure does not affect net benefits; this is in line with research [5][9]. The organizational structure in Arsani Hospital is not helpful for the system. The organizational structure cannot directly increase the perception of system users' perception of the benefits or net benefits [20]. The organizational structure here reflects the state of the institution, political culture, hierarchy, autonomy, cooperation, strategy, leadership, support from top management, staff support, and communication.

3) System quality does not affect system usage; this is following previous research [6][7][10][14]. Because the respondents still do not understand the system quality produced by HMIS Arsani Hospital, the system often experiences network disturbances, resulting in access to the system not being easy for users to use. The system response takes a long time.

4) System quality does not affect user satisfaction; this is following previous research [10][14] because most respondents feel that the quality of the HMIS Arsani Hospital has not satisfied users in terms of user needs. Users still do not understand the system's quality produced by HMIS Arsani Hospital. The system often experiences network disturbances, which result in access to the system not being easy for users to use. The system response takes a long time.

5) System development does not affect net benefits; this is following previous research [4][22][23] that a system that is not

fully utilized cannot function effectively and efficiently. System development is supported by the results of observations made by researchers where respondents from Arsani Hospital stated that currently, the development of the existing system was still not adequate because there were only 2 IT staff and they also had difficulty developing the system due to technological developments that are increasing that making IT staff overwhelmed to be able to develop existing systems and systems in hospitals using an external vendor, namely Avicenna, there is also an inconvenience for HMIS users, but development only focuses on developing aspects of computer equipment without paying attention to other technical aspects.

6) Service quality does not affect system development; this is following previous research [24][25] because most respondents still do not understand the quality of the system and lack knowledge about the development and benefits of implementing technology in system development. The system often experiences network disturbances resulting in the need for service by the user being hampered, such as access to the system is not easy to use, and the system response takes a long time.

7) User satisfaction does not affect system usage; this is following previous research [26-28] where user satisfaction and the use of HMIS Arsani Hospital do not affect each other because most respondents are still not very understanding in using the system.

V. Conclusion

Based on the results of research that has been conducted related to the evaluation of HMIS by measuring the success rate of implementation of HMIS at Arsani Hospital, Sungailiat Bangka Regency using the Human Organization and Technology Fit Model, it can be concluded that evaluation by measuring the success rate of HMIS implementation in Arsani Hospital using the HOT-Fit Model based on Employee Perspective through questionnaires to 99 respondents, data analysis techniques using PLS-SEM techniques that test measurement models (outer models) and structural models (inner models) with the help of SmartPLS software v.3.3.

The variables used in the research are system quality, information quality, service quality, system development, system use, user satisfaction, organizational structure, organizational environment, and net benefits from nine variables of this study developed, 43 questionnaire indicators.

Referring to the results of the data analysis that has been done, it is found that from 43 questionnaire indicators developed in this study, three questionnaire indicators were removed in the research model, namely SU2, OS6, and NB7. These three indicators do not meet the outer loading value (<0.7). Therefore, the eighteen hypotheses developed in the study, 11 hypotheses were accepted, as follows:

- The system quality (QS) affects system development (SD)
- The information quality (IQ) affects system development (SD)
- The information quality (IQ) affects system use (SU)
- The information quality (IQ) affects user satisfaction (US)
- The service quality (SEQ) affects system use (SU)
- The service quality (SEQ) affects user satisfaction (US)
- The service quality (SEQ) affects organization structure (OS)
- The system use (SU) affects system development (SD)
- The organization structure (OS) affects organization environment (OE)
- The system use (SU) affects *net benefit* (NB)
- The user satisfaction (US) affects *net benefit* (NB)

The other seven hypotheses were rejected: system quality (QS) to system use (SU); system quality (QS) to user satisfaction (US); service quality (SEQ) to system development (SD); user satisfaction (US) to system use (SU); system development (SD) to *net benefit* (NB); organization structure (OS) to *net benefit* (NB); and organization environment (OE) to *net benefit* (NB).

There are recommendations given based on the results of t-tests where seven relationships are not accepted as follows:

- Instructions for using HMIS are made more precise and conducted socialization related to understanding and knowledge of the importance of using HMIS.
- Scheduling, monitoring, and evaluating regularly and routinely so that the information submitted by HMIS is by the right time and carried out according to the management agreement.
- Routine evaluation and assessment are carried out on both employees and HMIS for improvement if there are obstacles or problems during use and minimize risks.
- Routine maintenance is carried out on HMIS from various aspects, not only computer equipment. However, it must also be interspersed with technical aspects to minimize problems that may occur. Also, make regular and routine employee training related to HMIS is held to improve system efficiency according to needs, quality of HMIS produced, user satisfaction, and employee understanding of technology and HMIS.
- Build a hospital company profile website and provide online patient registration services via the website or through a mobile application with a UI/UX that is comfortable & easy to use. Furthermore, for HR, the IT bureau from the hospital can hold seminars or training by hiring outside instructors related to technical, programming, or other matters as needed, which will assist the IT bureau in developing HMIS.
- Standard operating procedure (SOP) was made to improve the service quality of Arsani Hospital and optimize HMIS UI/UX, and integrate HMIS with BPJS system, attendance system, and employee payroll system.

Based on the results that have been carried out, the authors suggest some recommendations for Arsani Hospital, Sungailiat, Bangka Regency, and parties who intend to conduct further research to use other models such as TAM, EUCS, UTAUT, and others. Then, more attention to and explore the grammar of indicators from various kinds of literature from experts to avoid misinterpretation and follow the needs of system users comprehensively and comprehensively. Reviewing the relationship between system quality, information quality, service quality, system development, system use, user

satisfaction, organizational structure, organizational environment, and net benefits, because the relationship between these variables was influential in this study, some were not. influence on this research.

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