Assessing the Impact of Human and Technological Factors on Hospital Management Information System Utilization: A Case Study at Hospital X In Padang City Indonesia

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Abstract: This study examines the application of the HOT-Fit method, which evaluates the relationship between Human, Technology, and Net Benefit components within the Hospital Management Information System (HMIS) at Hospital X Padang. The Human component is assessed based on system usage and user satisfaction, while the Technology component is analyzed through information quality, service quality, and system quality. This study employs a quantitative crosssectional design, with the research population comprising all active users of the HMIS application at Hospital X Padang, including employees from various departments interacting with the system. The research aims to determine the extent to which the Human and Technology components influence the Net Benefit of the HMIS and to explore these relationships in greater depth. The findings reveal a significant relationship between the Human component and the Net Benefit, as well as between the Technology component and the Net Benefit of the HMIS. Among the factors examined, Technology emerges as the most dominant factor affecting the Net Benefit of the system. These results provide valuable insights for optimizing the implementation and impact of HMIS in healthcare settings.

Keywords: Hospital Management Information System (HMIS), HOT-Fit Method, Human Component, Technology Component, Net Benefit.

INTRODUCTION

Hospitals are one of the healthcare institutions that provide comprehensive individual health services, including inpatient, outpatient, and emergency care, as stated in the Indonesian Law No. 44 of 2009. Every hospital must continuously develop its services to improve healthcare delivery. Therefore, data, information, and health indicators are essential for the development of hospitals, which are managed through health information systems, as they play a crucial role in providing comprehensive healthcare services to the public. The availability of this health data and information is an important aspect that must be prioritized [1].

Hospital Management Information System (HMIS) is an information and communication technology system that organizes and integrates all hospital service processes in the form of an organizational network, reporting, and administrative systems to obtain accurate and precise information [2]. Additionally, HMIS is a component of the Health Information System [3].

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The HMIS used by hospitals must be user-friendly and capable of overcoming challenges in hospital services. An information system consists of data, people, processes, and a combination of hardware, software, and communication technologies. To improve the quality of services in hospitals, hospital administrators must focus on data entry in the HMIS, such as the placement of medical records and health information staff in the medical records unit, outpatient clinics, inpatient units, and other hospital departments directly related to healthcare services [4].

Every hospital faces numerous challenges when implementing Hospital Management Information Systems (HMIS), one of the barriers and challenges in HMIS is the lack of oversight over infrastructure, which leads to suboptimal human resources (HR) performance in managing the system. Management faces the challenge of creating policies that ensure effective implementation of HMIS [5].

Information system evaluation is an effective way to understand the actual state of system implementation. Through this assessment, the success of the system implementation can be determined, and further planning can be made for improvements [6]. Health

information system evaluation should not only focus on technological aspects but also on human and organizational factors [7].

User perception of a management information system can be assessed using a reference framework, one of which is the HOT-Fit analysis method, which includes Human, Organization, Technology, and Net Benefit. The HOT-Fit model is an information system model developed by [8]. The HOT-Fit method is derived from the DeLone and McLean Information Systems Success Model (2003) and the IT-Organization Fit Model. This model is used to classify evaluation factors, dimensions, and measures. Meanwhile, the IT-Organization Fit Model is used to combine the concept of fit from evaluation factors, such as users, hospitals, and HMIS. The HOT-Fit model includes design components to ensure that the HMIS aligns with the hospital's goals.

The HOT-Fit method consists of four variables: Human, evaluated from the system user's perspective (system use) and user satisfaction (use satisfaction); Organization, assessed from the organizational structure (structure) and environment (environment); and Technology, evaluated from the perspectives of information quality (information quality), service quality (service quality), system quality (system quality), and net benefit (net benefit). User satisfaction, organizational environment, and organizational structure are associated with net benefit, while system usage, organizational structure, and system quality are not directly related to net benefit [9].

One of the hospitals in Padang that utilizes a Hospital Management Information System (HMIS) is Hospital X, a Type C hospital providing outpatient, inpatient, and emergency services. Hospital X has been using HMIS since 2007. Unlike other hospitals that assign specific names to their HMIS applications, Hospital X simply refers to its application as "HMIS," an abbreviation of the Hospital Management Information System.

The HMIS application at Hospital X is an information and communication technology system that processes and integrates all service workflows at the hospital into a coordinated network. It connects various departments and units, facilitates reporting, and supports administrative procedures to obtain precise and accurate information, thereby enhancing the hospital's service delivery processes.

Hospital X has 20 departments or units already integrated with the HMIS, including the Emergency Department (ED), Medical Records, Outpatient Clinics, Cashier, Pharmacy, Operating Room, ICU, Laboratory, Radiology, Inpatient Units, Management, Finance, Accounting, Logistics, Pharmacy Warehouse, Nutrition, Laundry, Central Sterile Supply Department (CSSD), Hospital Maintenance Department (IPSRS), and Physiotherapy. The HMIS application at Hospital X is developed and maintained by the hospital's IT Unit, under which the HMIS operations are managed.

Based on a preliminary study conducted by the researchers, seven HMIS users reported challenges in its implementation. These issues include software and network disruptions, causing errors 3 to 5 times per week, as well as slow network performance. Additionally, there were cases where computers were incompatible with the HMIS application, frequent user turnover, and a lack of user competency due to diverse educational backgrounds. Furthermore, discrepancies were identified in the inventory data of medications, consumable goods, and general logistics recorded in the pharmacy warehouse and logistics warehouse systems compared to the reports generated by the pharmacy and other HMIS departments. These challenges significantly impact the quality of services at Hospital X, Padang.

Therefore, an evaluation of the HMIS at Hospital X is necessary. Evaluating the system based on user perceptions is critical, as users are best positioned to understand the system's needs and benefits. The success of an information system depends on individual acceptance and usage, particularly regarding the system's utility or its direct impact on users in improving organizational productivity [10].

Referring to the preliminary study, the implementation of the HMIS at Hospital X has not been assessed for its success. Previous research by demonstrated that the success of an HMIS is supported by key factors such as system users (Human), organizational support (Organization), and the technological capability (Technology) of the HMIS itself. Consequently, the HMIS can be evaluated using the Human, Organization, and Technology (HOT) Fit model. According Yusof *et al*., [8], the HOT-Fit model identifies the variables influencing the success of HMIS implementation and provides a framework for evaluation. Applying this model at Hospital X will help uncover the issues faced by HMIS users and serve as a guideline for improving and optimizing the system's performance.

The novelty of this article lies in its application of the Human, Organization, and Technology (HOT) Fit model as a comprehensive framework to evaluate the success factors influencing the implementation of the Hospital Management Information System (HMIS) at Hospital X, Padang. Unlike previous studies that may have focused on isolated aspects of HMIS evaluation, this research integrates all three critical dimensions—human, organizational, and technological factors—into a unified model. This approach offers a more holistic perspective for identifying key variables that impact the successful adoption and use of HMIS.

The study introduces a novel framework for leveraging the HOT-Fit model not only to measure success factors but also to establish specific criteria for evaluation within the hospital context. By applying the model, this research uncovers user-specific challenges and system inefficiencies, such as discrepancies in inventory data, network issues, and inadequate user competency. These insights are instrumental in creating actionable recommendations to enhance the system's performance.

Ultimately, this research provides a practical contribution to hospital information systems management by demonstrating how the HOT-Fit model can serve as a diagnostic tool for continuous improvement. The findings can guide the hospital in optimizing its HMIS to better support its operational and service delivery goals, offering a replicable framework for other healthcare institutions seeking to improve their own systems.

Hypothesis

The hypothesis model developed by the author for evaluating the Hospital Management Information System (HMIS) at Hospital X using the HOT-Fit Model approach focuses on the components/factors of Human, Organization, Technology, and Net Benefit. The hypotheses are formulated as follows:

H1: There is a relationship between the Human component and the Net Benefit of the Hospital Management Information System (HMIS) at Hospital X.

H2: There is a relationship between the Technology component and the Net Benefit of the Hospital Management Information System (HMIS) at Hospital X.

H3: There is a significant influence of the Human and Technology components on the Net Benefit of the Hospital Management Information System (HMIS) at Hospital X.

This hypothesis model aims to explore how key components of the HOT-Fit Model influence the perceived effectiveness and net benefits of HMIS implementation, providing a comprehensive framework for evaluating and improving the system's performance.

METHODE

This study employs a quantitative cross-sectional design, with the research population comprising all active users of the HMIS application at RS X Padang. These users include active employees across various departments interacting with the system. Based on the data and information obtained, RS X Padang has a total of 439 employees, all of whom are HMIS users with unique user IDs and passwords. Among these employees, 254 actively use the HMIS application. From this population of 254 active users, a sample of 155 respondents was selected.

To determine which HMIS users would be included in the sample, a Proportional Stratified Random Sampling technique was employed, using the following inclusion criteria:

1. Employees working at RS X Padang.
2. Active users of the HMIS application with a user ID and password.
3. Willing to participate as respondents.

The exclusion criteria were:

1. Employees on leave.
2. Employees who could not be reached after three visits.

Data were collected through questionnaires filled out by respondents and supplemented by interviews conducted by the researcher with HMIS users at RS X Padang.

This study was analyzed using SPSS tools, which were utilized for performing univariate analysis using descriptive statistics to determine the frequency distribution and percentages of each variable. The variables included the independent variables, namely Human and Technology, and the dependent variable, Net Benefit.

For bivariate analysis, a significance threshold of $\alpha = 0.05$ was used. If the p-value ≤ 0.05, the statistical results were considered to show a significant relationship; conversely, if the p-value > 0.05, the results were deemed to indicate no significant relationship.

Furthermore, multivariate analysis was conducted. Descriptive cross-tabulation analysis was used to observe trends between variables. Finally, a multiple logistic regression test was performed to determine the influence between variables.

RESULT

Univariate Analysis

Respondent Characteristics

Table **1** presents the frequency distribution data of the study respondents based on age, gender, education, and years of service.

Table 1: Frequency Distribution of Respondent Charateristics

No	Age	*f*	%
1	≤25	28	18.1
2	26-35	78	50.3
3	36-45	42	27.1
4	>45	7	4.5
Total Amount		**155**	**100.0**
Gender			
1	Male	44	28.4
2	Female	111	71.6
Total Amount		**155**	**100.0**
Education			
1	Diploma D3	84	54.2
2	Bachelor's Degree (S1)	40	25.8
3	Pharmacist Professional Program	6	3.9
4	Nursing Professional Program	24	15.5
5	Doctor/	1	6
Total Amount		**155**	**100.0**
Years Of Service			
1	<6	86	55.5
2	6-10	31	20.0
3	>10	38	24.5
Total Amount		**155**	**100.0**

Based on the table (Table **1**), it can be observed that 50.3% of respondents are aged between 26 and 35 years. Additionally, 71.6% of respondents are female, indicating a higher proportion of women in the study sample. In terms of education, 54.2% of respondents have a Diploma (D3) qualification, highlighting that the majority of participants possess mid-level academic credentials. Regarding work experience, 55.5% of respondents have been employed for less than six years, suggesting a relatively young workforce with limited tenure in their current roles.

This demographic distribution provides valuable insights into the characteristics of the respondents, which may influence their perspectives on the hospital's management information system (HMIS). Younger respondents with shorter tenure might have different levels of familiarity or adaptability to technology compared to more experienced counterparts, while the educational background could play a role in their competency and confidence in using the system.

System Usage

The distribution of the category for the usage of the HMIS application system among respondents is as follows:

Table 2: Frequency Distribution of HMIS System Usage at Hospital X Padang

No.	System Usage	*f*	%
1	Poor	76	49.0
2	Good	79	51.0
Frequency		**155**	**100.0**

Based on the table (Table **2**), it can be seen that 49.0% of respondents have a negative perception regarding the use of the system, and good 51% of respondent.

Based on the table (Table **3**), it can be seen that 49.0% of respondents disagree with having strong skills in using the HMIS, while 47.7% of respondents agree that using the system helps facilitate their work.

User Satisfaction

The distribution of user satisfaction categories for the HIMS application among respondents is as follows:

Based on the table (Table **4**), it can be seen that 43.2% of respondents are dissatisfied with the use of the system (HMIS application), while a larger proportion, 56.8%, are satisfied with it.

Table **5** provides the frequency distribution based on responses regarding the system quality of the HMIS

Table 3: Frequency Distribution Based on Responses Regarding the Use of the HMIS System at Hospital X Padang

No.	Statement	Answer									
		Strongly Agree		Agree		Disagree		Don't Agree		Strongly Disagree	
		f	%	*f*	%	*f*	%	*f*	%	*f*	%
1	I often use HMIS in my daily work	44	28.8	44	28.8	43	27.7	14	9.0	10	6.5
2	All my work is very dependent on HMIS	24	15.4	46	29.7	12	7.7	61	39.3	12	7.7
3	I have good skills in using HMIS	14	9.0	22	14.2	20	12.9	76	49.0	23	14.8
4	I feel that using the system makes my work easier.	14	9.0	74	47.7	28	18.0	24	15.5	15	9.7

application at Hospital X Padang. The data includes responses to four statements answered by the study's respondents. These statements assess key aspects of system quality, such as functionality, user-friendliness, system stability, and integration with other hospital operations.

Table 4: Frequency Distribution of User Satisfaction with HMIS at Hospital X Padang

No.	User Satisfaction	*f*	%
1	Not Satisfaction	67	43.2
2	Satisfaction	88	56.8
Total Amount		**155**	**100.0**

Based on the table (Table **5**), it can be seen that 43.2% of respondents disagree that the facilities and features available in the HMIS meet their needs, while 50.3% of respondents agree that the HMIS application is very beneficial in improving their performance at the hospital.

Based on the table (Table **6**), it can be seen that 47.7% of respondents stated that HMIS is not effective in the human (user) component, while 52.3% stated that HMIS is effective in the human (user) component.

Table 6: Frequency Distribution Based on Human (User) Factors

No.	Human	*f*	%
1.	Poor	74	47.7
2.	Good	81	52.3
Frequency		**155**	**100.0**

Technology

The Table **7** explains respondents' perceptions of the technology component in the utilization of HMIS at RS X Padang.

Based on the table (Table **7**), it is known that 47.7% of respondents stated that HMIS is not effective in terms of technology, while 52.3% stated that it is effective in terms of technology.

Table 5: Frequency Distribution Based on User Satisfaction Responses for HMIS at Hospital X Padang

No.	Statement	Answer									
		Strongly Agree		Agree		Disagree		Don't Agree		Strongly Disagree	
		f	%	*f*	%	*f*	%	*f*	%	*f*	%
1	I am satisfied with the implementation of the HMIS application as the information system at the hospital.	9	5.8	80	51.6	33	21.3	27	17.4	6	3.9
2	The facilities and features available in the HMIS meet the needs.	8	13.5	36	43.2	23	14.8	67	43.2	21	13.5
3	In my opinion, the implementation of the HMIS has met my expectations as an information system at the hospital.	15	9.7	74	47.7	30	19.4	24	15.5	12	7.7
4	In my opinion, the HMIS application is very beneficial in improving my performance at the hospital.	12	7.7	78	50.3	30	19.4	26	16.8	9	5.8

Table 7: Frequency Distribution Based on Human (Tecnology) Factors

No.	Technology	f	%
1.	Poor	74	47.7
2.	Good	81	52.3
Frequency		**155**	**100.0**

System Quality

In Table **7**, the distribution of system quality categories of the HMIS application among respondents is explained. The table outlines the respondents' perceptions regarding the system's efficiency, reliability, user-friendliness, stability, and integration with other hospital units, providing insights into the overall quality of the HMIS at Hospital X Padang.

Table 8: Frequency Distribution Based on System Quality of HMIS at Hospital X Padang

No.	System Quality	*f*	%
1	Poor	69	44.5
2	Good	86	55.5
Frequency		**155**	**100.0**

Based on the table (Table **8**), it is evident that 44.5% of respondents rated the system quality as poor, while 55.5% rated it as good. This indicates that the system quality of HMIS at Hospital X Padang is relatively satisfactory.

The Table **9** presents the frequency distribution based on responses regarding the system quality of the HMIS application at Hospital X Padang. It highlights respondents' perspectives on various aspects of the system's performance, including functionality, ease of use, stability, and integration capabilities.

In Table **8**, the frequency distribution based on responses regarding the system quality of the HMIS application will be explained, which consists of 7 statements from the respondents' answers.

Based on the table (Table **9**), it is known that 43.2% of respondents disagree that HMIS has high access speed, and 43.9% agree that HMIS is user-friendly.

Net Benefits

In Table **9**. the frequency distribution based on responses regarding the Net Benefit (utilization) of HMIS at Hospital X Padang will be explained. This consists of 5 statements that will be answered by respondents using the following scale: Strongly Agree, Agree, Disagree, Strongly Disagree.

Based on the table (Table **10**), it can be seen that 42.6% of respondents disagree that HMIS can improve work efficiency, while 41.3% agree that HMIS helps minimize errors in report creation. This indicates that, for net benefit, the number of respondents who disagree is higher than those who agree.

Bivariate Analysis

To analyze the bivariate relationships between the variables in your research, specifically between Human and Net Benefit, as well as Technology and Net Benefit in the HMIS (Hospital Information System) at Hospital X Padang.

Table 9: Frequency Distribution Based on Responses Regarding the System Quality of the HMIS Application

No.	Statement	Answer									
		Strongly Agree		Agree		Disagree		Don't Agree		Strongly Disagree	
		f	%	*f*	%	*f*	%	*f*	%	*f*	%
1	HMIS is easy to use and user-friendly.	18	11.6	68	43.9	9	5.8	54	34.8	6	3.9
2	HMIS is easy to learn and understand	28	18.1	49	31.6	15	9.7	51	32.9	12	7.7
3	HMIS has connected one department to another	24	15.5	64	41.3	15	9.7	49	31.6	3	1.9
4	It has complete features.	23	14.8	54	34.8	21	13.5	48	31.0	9	5.8
5	HMIS is easy to access.	26	16.8	59	38.1	14	9.0	51	32.9	5	3.2
6	HMIS rarely encounters errors.	5	3.2	12	7.7	51	32.9	67	43.2	20	12.9
7	HMIS rarely experiences errors	18	11.6	21	13.5	24	15.5	60	38.7	32	20.6

Table 10: Frequency Distribution Based on Responses Regarding the Net Benefit (Utilization) of HMIS at Hospital X Padang

No.	Statement	Answer									
		Strongly Agree		Agree		Disagree		Don't Agree		Strongly Disagree	
		f	%	f	%	f	%	f	%	f	%
1	HMIS can improve work efficiency.	20	12.9	34	21.9	29	18.7	66	42.6	6	3.9
2	HMIS helps achieve goals effectively.	19	12.3	59	38.1	36	23.2	36	23.2	5	3.2
3	HMIS makes daily tasks much easier.	17	11.0	58	37.4	47	30.3	30	19.4	3	1.9
4	HMIS helps minimize errors in generating reports.	18	11.6	64	41.3	37	23.9	33	21.3	3	1.9
5	HMIS can enhance communication across all departments within the organization.	31	20.0	48	31.0	70	45.2	1	6	5	3.2

Effect Human and Net Benefit of HMIS at RS X Padang

In the Table **11**, we will explain the bivariate analysis of the relationship between Human and Net Benefit in the use of the HMIS (Hospital Information Management System) at RS X Padang. This bivariate test aims to analyze whether the "Human" component (such as training, user competence, or interaction with the system) influences or is associated with the "Net Benefit" (such as improvements in performance, efficiency, and effectiveness) of HMIS.

Table 11: The Relationship Between Human and Net Benefit

No.	Human	Net Benefit				Total		P-Value
		Poor Benefit		Benefit				
		n	%	n	%	n	%	
1	Poor	57	70.4	24	29.6	81	100	**0.000**
2	Good	16	21.6	58	78.4	74	100	
Frequency		**73**	**47.1**	**82**	**52.9**	**155**	**100**	

Based on the table above (Table **11**), it is found that 70.4% of respondents with a "poor" Human category reported not benefiting from HMIS, while 21.6% of those in the "good" Human category reported not benefiting.

The statistical test results show a p-value of 0.000, which is less than 0.05 (α). This indicates that there is a significant relationship between the Human component and the Net Benefit of the HMIS application at RS X Padang.

Effect Technology and Net Benefit on HMIS at RS X Padang

In Table **12**, the results of the bivariate test will be presented to examine the influence of technology on the net benefit of HMIS usage at RS X Padang.

Table 12: The Influence of Technology on Net Benefit

No.	Technology	Net Benefit				Total		P-Value
		Poor Benefit		Benefit				
		n	%	n	%	n	%	
1	Poor	58	78.4	16	21.6	74	100	**0.000**
2	Good	15	18.5	66	81.5	81	100	
Frequency		**73**	**47.1**	**82**	**52.9**	**155**	**100**	

Based on the table above (Table **12**), it is known that 78.4% of respondents in the "poor" category for Technology did not perceive any benefits, while 18.5% of respondents in the "good" category for Technology did not perceive any benefits either.

The statistical test results show a p-value of 0.000 < 0.05 (α), which indicates a significant influence between the Technology component and the Net Benefit of the HMIS application at RS X Padang.

Multivariate Analysis

The table below (Table **13**) will explain the results of the multivariate test, which shows the significant variables related to Net Benefit: Human and Technology, along with the following p-value results.

Based on the (Table **13**), it is clear that there are two main factors influencing the Net Benefit of the

Table 13: Multivariate Analysis

Variabel Independen	B	S.E.	Wald	df	Sig.	Exp(B)	R Square
Human	0.76	0.45	2.82	1	0.02	2.15	0.714
Technology	1.94	1.26	2.35	1	0.01	6.97	

Table 14: Multiple Linear Regression Analysis

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	1944.816	5	388.963	28.590	.000[b]
Residual	2027.094	149	13.605		
Total	3971.910	154			

HMIS at RS X Padang, which are the Human and Technology components. The overall strength of the influence of the HOT variables, based on the R Square value, is 0.714 or 71.4%. This indicates that the influence of the HOT components as a whole is quite strong on the Net Benefit of HMIS implementation at RS X Padang.

Among the two main HOT components, the variable with the strongest influence is the Technology component, with an Odds Ratio (OR) of 6.97%. This means the strength of the Technology component's influence on the Net Benefit in the beneficial category is quite strong in a positive direction. In other words, the better the respondents use Technology, the better the Net Benefit and the success of HMIS implementation.

The following is an overview of the test results on the relationship and influence of the independent variables (Human, and Technology components) on the dependent variable (Net Benefit):

Annova Test

In Table **14** below, we present the results of the One-Way ANOVA test conducted to assess the differences in mean scores across multiple groups. ANOVA, which stands for Analysis of Variance, is a statistical method used to determine whether there are any statistically significant differences between the means of three or more independent groups.

Based on the SPSS output Table **14**, the significance value (Sig.) is 0.000, and the F-statistic is 28.590. Since the Sig. value of 0.000 is less than the threshold of 0.05, according to the decision rule in the F-test, we can conclude that the hypothesis is accepted. In other words, Information Quality, System Usage, Facility Conditions, User Satisfaction, and System Quality simultaneously have a significant effect on Net Benefit.

DISCUSSION

The research findings indicate that the largest group of respondents using the HMIS is between the ages of 26-35, with the majority of respondents being female at 71.6%. The highest level of education among respondents is a diploma, and the most common work tenure is less than 6 years, accounting for 55.5% of the respondents.

The statistical test results show a p-value of 0.000, which is less than 0.05 (α). This indicates that there is a significant relationship between the Human component and the Net Benefit of the HMIS application at RS X Padang, as well as a significant influence between the Technology component and the Net Benefit of the HMIS application at RS X Padang.

The analysis shows that the two main factors influencing the Net Benefit of HMIS at RS X Padang are the Human and Technology components. The overall strength of these factors, with an R Square value of 0.714 (71.4%), indicates a strong influence on the Net Benefit of HMIS implementation. Among the components, Technology has the strongest influence, with an Odds Ratio (OR) of 6.97%, meaning that better use of Technology leads to a more positive Net Benefit and greater success in HMIS implementation.

It demonstrates how we can obtain a framework for evaluating Health Information Systems (HIS) that integrates comprehensive dimensions and measures of

HIS, ensuring alignment between technology, people, and the organization. A case study illustrates the application of the proposed framework to depict critical adoption factors of a specific HIS with particular users in a certain setting. The proposed framework, Human, Organization, and Technology Fit (HOT-fit), is designed to be useful for conducting comprehensive evaluation studies [8].

HMIS is regarded as a highly promising tool for enhancing the overall efficiency, safety, and effectiveness of healthcare services. The broad and effective use of HMIS improves the quality of healthcare, minimizes adverse effects, reduces medical care costs, boosts administrative productivity, decreases the burden of documentation, and enhances access to affordable care [11].

The implementation of HIS has been proven to bring significant changes in aspects of culture, policy, and authority, which connect various professional groups within an organization [12]. Numerous published studies on the success of information systems generally focus on the Delone and McLean model [13].

The implementation of Hospital Information Systems (HIS) plays a crucial role in supporting clinical decision-making through decision support systems . These systems assist healthcare professionals in making evidence-based decisions, ranging from diagnostic processes to treatment planning, thereby enhancing the quality of care by providing accurate and up-to-date information [14].

LIMITATIONS OF THE STUDY

This study did not examine the environmental variable, which is also included in the HOT-Fit method. Additionally, the study did not delve deeply into the system and application of the information system but rather evaluated the information system based on user perceptions using the HOT-Fit method.

RESULT AND IMPLICATION

The conclusions of this study indicate that there is a significant relationship between the Human component and the Net Benefit of the Hospital Information System (HMIS) at Hospital X Padang. Similarly, a significant relationship is observed between the Technology component and the Net Benefit of the HMIS at the same institution. Among the factors studied, Technology emerges as the most dominant factor influencing the Net Benefit of the HMIS at Hospitasl X Padang.

The implications of this study include time constraints in conducting in-depth interviews. Additionally, this research did not examine the environmental variable, which is also part of the HOT-Fit framework. Furthermore, the study does not delve deeply into the system and application aspects of information systems but instead evaluates the information system based on user perceptions using the HOT-Fit method.

REFERENCES

[1] Kementerian kesehatan republik Indonesia. SISTEM Informasi Manajemen Rumah Sakit 2013.

[2] Rahmaddian T, Faaghna L. Evaluasi Implementasi Sistem Informasi Manajemen Rumah Sakit (SIMRS) Rekam Medis dengan Metode Problem Solving Tools di Rumah Sakit X. Jurnal Kesehatan 2023; 12(2): 339-345. https://doi.org/10.46815/jk.v12i2.176

[3] World Health Organization. Health Information System 2011.

[4] Jha AK, Doolan D, Grandt D, Scott T, Bates DW. The use of health information technology in seven nations. International Journal of Medical Informatics 2008; 77(12): 848-854. https://doi.org/10.1016/j.ijmedinf.2008.06.007

[5] McCullough JS. The adoption of hospital information systems. Health Economics 2008; 17(5): 649-664. https://doi.org/10.1002/hec.1283

[6] Kawuwung CEL, Citraningtyas G, Jayanto I. Analisa Pengaruh HOT (Human, Organization, and Technoloy) Fit terhadap Kinerja Sistem Informasi Manajemen Rumah Sakit di Rumah Sakit Bhayangkara TK III Manado. Jurnal Lentera Farma 2023; 2(2).

[7] Winter A, Haux R. A Three-Level Graph-Based Model for the Management of Hospital Information Systems. Methods of Information in Medicine 1995; 34(04): 378-396. https://doi.org/10.1055/s-0038-1634610

[8] Yusof MM, Kuljis J, Papazafeiropoulou A, Stergioulas LK. An evaluation framework for Health Information Systems: human, organization and technology-fit factors (HOT-fit). International Journal of Medical Informatics 2008; 77(6): 386-398. https://doi.org/10.1016/j.ijmedinf.2007.08.011

[9] Balaraman, Premkumar KK. E-hospital management & hospital information systems-changing trends. International Journal of Information Engineering and Electronic Business 2013; 5(1): 50. https://doi.org/10.5815/ijieeb.2013.01.06

[10] Ammenwerth E, Gräber S, Herrmann G, Bürkle T, König J. Evaluation of health information systems—problems and challenges. International Journal of Medical Informatics 2003; 71(2-3): 125-135. https://doi.org/10.1016/S1386-5056(03)00131-X

[11] Arora L, Ikbal F. Experiences of implementing hospital management information system (HMIS) at a tertiary care hospital, India. Emerald Insight 2021; 20(1). https://doi.org/10.1108/XJM-09-2020-0111

[12] Engin M, Gürses F. Adoption of Hospital Information Systems in Public Hospitals in Turkey: An Analysis with the Unified Theory of Acceptance and Use of Technology Model. World Scientific Connect 2019; 16(6). https://doi.org/10.1142/S0219877019500433

[13] Sadoughi F, Kimiafar K, Ahmadi M, Shakeri MT. Determining of Factors Influencing the Success and Failure of Hospital Information System and Their Evaluation Methods: A Systematic Review. National Library of Medicine 2013. https://doi.org/10.5812/ircmj.11716

[14] Okolo CA, Ijeh S, Arowoogun JO, Adeniyi AO, Omotayo O. Reviewing the impact of health information technology on healthcare management efficiency. International Medical Science Research Journal 2024; 4(4). https://doi.org/10.51594/imsrj.v4i4.1000

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