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Original Article

Analysis of Hospital Management Information System Implementation Using Modification of Integrated Model and Its Implication on the Quality of Electronic Medical Records

Rasipin[1], Munawar[2*], Muhammad Fachrudin Arrozi[1], Rokiah Kusumapradja[1], Rian Adi Pamungkas[1], Nofierni[1]

[1]Magister of Hospital Administration Program, Esa Unggul University, Jakarta, Indonesia
[2]Faculty of Computer Science, Esa Unggul University, Jakarta, Indonesia

(Correspondence author's email, munawar@esaunggul.ac.id)

ABSTRACT

The implementation of electronic medical records through the Hospital Management Information System Generic Open Source (SIMRS-GOS) Version-2 (V2) developed by Indonesian Ministry of Health has been implemented since 2012. The data shows that the failure rate in using information systems in developing countries is quite high due to the quality and reliability of the system, people and support from the organization. The aim of this research is to analyze the implementation of SIMRS-GOS at three interrelated levels namely human-technological-organizational factors and their benefits on the quality of electronic medical records. The research design uses a quantitative exploration. The research subjects consist of doctors, nurses and midwives, totaling 235 respondents. The data is obtained through a questionnaire. Statistics analysis uses structural equation modeling. The research results show that there is a significant positive influence among human factors, organizational factors and user satisfaction on behavior intentions; use behavior towards net benefits; net benefits and technology factors on user satisfaction; technological factors and net benefits on behavior intentions through user satisfaction; use behavior towards user satisfaction through net benefits. There is a very strong significant correlation among the three human-technology-organization factors and finally there is a significant influence of net benefits on the quality of electronic medical records. Based on these results, it is concluded that the implementation of SIMRS-GOS is acceptable to users at Brebes District Public Hospital. It is also considered successful and has implications for the quality of electronic medical records.

Keywords: *Behavior Intention, Use Behavior, User Satisfaction, Net Benefits, The Quality of Electronic Medical Records*

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INTRODUCTION

Brebes District Public Hospital (RSUD) has been using the Hospital Management Information System (SIMRS) Generic Open Source (GOS) Version-2 (V2) since May 1, 2021. The implementation of Electronic Medical Records (EMR) is full in the new inpatient installation starting on August 17, 2023. Based on the results of an internal survey in September 2023, the completeness of filling in inpatient electronic medical records only reached 90.75% of 1,778 electronic medical records completed (Target 100%). [1]

The figure for pending BPJS (health-care insurance) claims from January to July 2023 at Brebes Regional Hospital is still considered high, namely 16.45%.[2] Previous studies revealed that the causes of disputes over BPJS inpatient claims were incomplete medical record files, inaccuracy in coding, and lack of evidence in selecting the main diagnosis. These three causes of pending claims are influenced by the compliance of the Doctor in Charge of the Service in filling in the medical records completely, the limitations of the coder both in terms of quantity and quality, the consistency of disease management or diagnosis, and the output of which is the results of supporting examinations. The implementation of EMR is expected to minimize the obstacles that result in pending claims.[3]

The Ministry of Health of the Republic of Indonesia issued EMR regulations contained in Minister of Health Regulation Number 24 in the Year of 2022 concerning Medical Records. One of the points highlighted in Minister of Health Regulation Number 24 Year of 2022 is the obligation to manage EMR. The aim of this appeal is that the administration of medical records can be regulated in a way that is based on an information system so that it can advance the quality of health services, ensure the safety and confidentiality of databases, and create EMR-based medical record management.[4]

Successful hospital implements a fully functional EMR, has several advantages including easing of access to information, improving quality clinical decision making, patient monitoring, and increasing efficiency and profits financial. The EMR system is being able to be integrated with a billing or claim system which is the most sought besides its advantage. [3]

The Ministry of Health, through the Directorate General of Health Effort Development, has been building SIMRS-GOS since 2012 with the hope that it can be used by all hospitals in Indonesia. Data from the Directorate General of Health Services website shows that there are 129 SIMRS-GOS V2 users. This number is still very small compared to the number of hospitals which at the end of 2022 reached 3,072 hospitals (4.2%). In this case, many information systems fail to be implemented due to various reasons. In the government sector, the development and use of information systems as a form of e-government implementation, which is then called Electronic-Based Government Systems (SPBE), is not always smooth and as expected. The results of analysis of more than 40 reports of e-government implementation in developing countries found that 35% failed completely, 50% failed partially and only 15% achieved success[5,6]. The main factors that can cause failure are the quality and reliability of the system, humans as end users, and support from management level.[7]

Evaluation needs to be carried out on the system that is already running to find out the positive aspects that encourage system use and identify factors that cause obstacles. The evaluation covers various aspects of the use of information and communication technology in hospitals. Several studies show that the trend in evaluating health information systems does not only look at technological aspects but also considers human and organizational aspects. With this evaluation, hospitals can develop SIMRS by considering user needs and factors that influence the use of SIMRS and the expected benefits.[8]

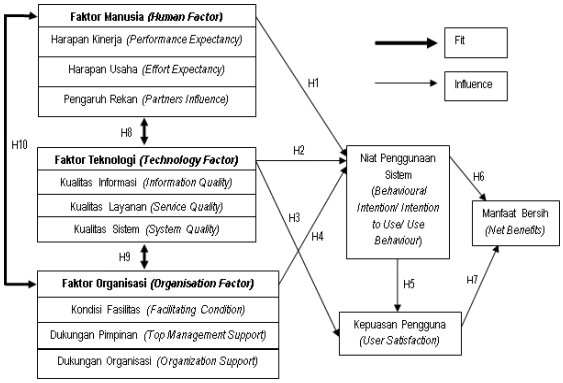

Figure 1. Integrated evaluation model of success and acceptance of information systems (e-leraning)

Mohamadali & Garibaldi (2010), then modified by Pamugar et al (2014).[9,10] have

reported a new model for integrated evaluation of information systems, namely by combining three commonly used information system evaluation theories (Figure 1). The three evaluation theories are the UTAUT model from Venkatesh et al (2003)[11], the D&M IS Success Model information system success model from DeLone & McLean (2003)[12] and the human-organization-technology fit model (Human Organization Technology) or HOT-Fit from Yusof et al (2006).[13]

The contribution of this research is the result of a modification of the integrated model, namely by adding the EMR quality variable after the net benefit variable and the use behavior variable between the behavioral intention and user satisfaction variables, and reverse the direction of the arrow from the user satisfaction variable to behavior intention. The addition of new variables and changes in the direction of the arrows are adjusted to the original model D&M IS Success Model (2003). Users of a system are humans who psychologically have certain existing behaviors within themselves, which causes aspects of user behavior (use behavior) of information technology to become an important factor for everyone who uses information technology.[14] A health service system that uses information technology makes the system more efficient, safer, and consistently provides high quality services.[15] The application of RME has the potential to improve health services through ease of communication between doctors, increased documentation efficiency, better information sharing, and encouraging shared responsibility with patients.[16]

The modification of this model is presented in Figure 2 below:

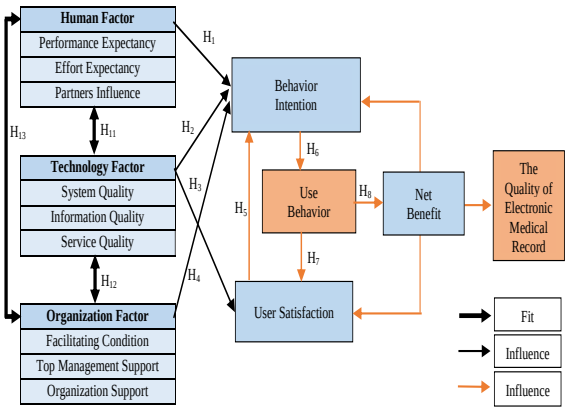

Figure 2. Modification of the integrated model for analysis of SIMRS implementation in this research

METHOD

This research uses a quantitative type of research with a Cross-Sectional design because the data collection to analyze the relationship or influence between variables is carried out by observation at one time. This research design uses a quantitative approach.

The subjects or respondents in this study were specialist doctors, general practitioners, midwives, and nurses in the Brebes District Public Hospital who have provided services and filled in electronic medical records through SIMRS-GOS V2, totaling 235 people. Questionnaire answers for the variables of human factors, technological factors, organizational factors, behavior intentions, use behavior, user satisfaction and net benefits use a Likert scale. Data collection for the electronic medical record quality questionnaire was carried out by verifying the results of respondents EMR entries by medical record officers. The hypothesis of this research are :

1. Human factors influence behavior intentions
2. Technological factors influence behavior intentions
3. Technological factors influence user satisfaction
4. Organizational factors influence behavior intentions
5. User satisfaction influences behavior intentions
6. Behavior intention influences use behavior
7. Use behavior influences user satisfaction
8. Use behavior influences net benefits
9. Net benefits influence user satisfaction
10. Net benefits influence behavior intention
11. There is a compatibility/ relationship between human factors and technology
12. There is a compatibility/ relationship between technological and organizational factors
13. There is a compatibility/ relationship between human and organizational factors
14. Net benefits influence the quality of electronic medical records

Statistical analysis uses the Structural Equation Modeling (SEM) application.

Hypothesis testing uses the Z statistical value with an alpha significance level of 0.05, resulting in a Z statistical value of 1.96. The criterion for accepting the hypothesis is that the Z (CR) value is >±1.960, while to reject/accept the hypothesis, the probability value (p) comparison is used, namely the hypothesis is accepted if the probability value (p) is <0.05.

RESULTS

The implementation of inpatient electronic medical records through the implementation of SIMRS-GOS V2 at Brebes District Public Hospital since 17 August 2023 has helped to reduce pending claims from 16.45% (January-July 2023) to 14.37% (August-December 2023) as well as increasing the completeness of medical record filling inpatient electronics from 90.75% (September 2023) to 98,40% (December 2023).[1] The implementation of SIMRS-GOS V2 makes it easier for services at Brebes District Public Hospital and has become a model for some other hospitals.

a. Respondent Characteristics

Characteristics respondents from the 235 subjects studied showed in table 1 below :

Table 1. Characteristics of research respondents

No	Respondents Caracteristics	Frequency	Percentage (%)
1.	**Sex**		
	Men	103	43,8
	Women	132	56,2
2.	**Age (Year)**		
	21 – 30	99	42,1
	31 – 40	84	35,7
	41 – 50	39	16,6
	51 – 60	13	5,6
3.	**Education**		
	Master/equivalent	22	9,4
	Undergraduate/equivalent	95	40,4
	Diploma 3/equivalent	118	50,2
4.	**Occupations**		
	Medical Specialist	24	10,2
	Geneal Practitioners	11	4,7
	Nurses	171	72,8
	Midwifes	29	12,3

b. Direct Effect Testing

Testing the direct effect of the relationship among variables in this study as follows:

Table 2. Direct influence test results

No	Influence between variables			Estimate	S.E.	C.R.	*P*	Conclusion
1	Behavior Intention	<---	Human Factor	1,146	0,433	2,646	0,008	Accepted
2	Behavior Intention	<---	Tecnology Factor	-0,719	0,602	-1,195	0,232	Rejected
3	User Satisfaction	<---	Tecnology Factor	0,294	0,097	3,042	0,002	Accepted
4	Behavior Intention	<---	Organization Factor	1,326	0,378	3,512	0,0001	Accepted
5	Behavior Intention	<---	User Satisfaction	3,121	1,347	2,318	0,020	Accepted
6	Use Behavior	<---	Behavior Intention	0,964	0,045	21,477	0,0001	Accepted
7	User Satisfaction	<---	Use Behavior	0,062	0,084	0,743	0,457	Rejected
8	Net Benefit	<---	Use Behavior	0,986	0,052	18,840	0,0001	Accepted
9	User Satisfaction	<---	Net Benefit	0,654	0,108	6,084	0,0001	Accepted
10	Behavior Intention	<---	Net Benefit	-3,969	1,473	-2,695	0,007	Accepted
11	Tecnology Factor	<--->	Human Factor	0,950	0,034	8,403	0,0001	Accepted
12	Organization Factor	<--->	Tecnology Factor	0,872	0,035	8,276	0,0001	Accepted
13	Organization Factor	<--->	Human Factor	0,871	0,039	7,807	0,0001	Accepted
14	The Quality of EMR	<---	Net Benefit	0,213	0,101	2,118	0,034	Accepted

c. Indirect Effect Testing

If we refer to the structure of this research as in Figure 3 above, the relationship among variables that have an indirect influence is as follows:

1) The influence of technological factor variables on behavior intentions through user satisfaction
2) The influence of net benefits variables on behavior intention through user satisfaction
3) The influence of use behavior variables on user satisfaction through net benefits

According to Dachlan (2014), to test indirect effects, we must use the Sobel Test.[17] Testing was carried out using calculate Sobel test software. Sobel test using online software assistance at: www.danielsoper.com. Based on Table 2 above, the values of the test results for variables that have an indirect effect (influence) or have a mediating/ intervening effect that are analyzed using the Sobel Test are as follows:

Table 3. The test result values are used for analysis with the Sobel Test

Influence between variables			Estimate	S.E.	C.R.	*P*
User Satisfaction	<---	Technology Factor	0,294	0,097	3,042	0,002
User Satisfaction	<---	Net Benefit	0,654	0,108	6,084	0,0001
Behavior Intention	<---	User Satisfaction	3,121	1,347	2,318	0,020
Behavior Intention	<---	Technology Factor	-0,719	0,602	-1,195	0,232
Behavior Intention	<---	Net Benefit	-3,969	1,473	-2,695	0,007
Net Benefit	<---	Use Behavior	0,986	0,052	18,840	0,0001
User Satisfaction	<---	Net Benefit	0,654	0,108	6,084	0,0001
User Satisfaction	<---	Use Behavior	0,062	0,084	0,743	0,457

The results of the Sobel Test calculations are presented in Tables 4 to 6 below:

Table 4. The results of the Sobel Test

Structure	C.R	P		Conclusion
		One-tailed	Two-tailed	
Technology factor → User satisfaction → Behavior intention	2.037	0,021	0,042	Accepted
Net benefit → User satisfaction → Behavior intention	2.056	0,006	0,012	Accepted
Use behavior → Net benevit → User satisfaction	5,768	0,0001	0,0001	Accepted

Based on Tables 4, the results of testing the indirect effect with the Sobel Test show that technological factors have a significant positive effect on behavior intention through user satisfaction. Net benefits have a significant positive effect on behavior intention through user satisfaction. Use behaviour has a significant positive effect on user satisfaction through net benefits.

d. Coefficient of Determination Test (R^2)

The R^2 value explains how much the hypothesized independent variable in the equation is able to explain the dependent variable. The criteria for limiting the R^2 value in three classifications, namely the R^2 value = 0.67, 0.33, and 0.19 as substantial, moderate, and weak. Based on the analysis results, the R^2 value was 0.507 for the behavior intention variable, 0.957 for the user satisfaction variable, 0.936 for the use behavior variable, 0.849 for the net benefit variable and 0.021 for the electronic medical record quality variable. R^2 value for the Behaior Intention variable 0.507, this shows that 50.7% of the Intention to Use variable is influenced by human factor variables, technological factors, organizational factors, user satisfaction and net benefits while the remaining 49.3% influenced by other variables. R^2 value for User Satisfaction variable 0.957, this case shows that 95.7% of the User Satisfaction variable are influenced by variables technological factors, use behavior and net benefits while the remaining 4.3% influenced by other variables. R^2 value for Use Behavior variable 0.936, this case shows that 93.6% of the Use Behavior variable is influenced by the behavior intention variable while the remaining 6.4% is affected by other variables. R^2 value for the Net Benefit variable 0.849, this shows that 84.9% variable Net Benefits are influenced by use behavior variable while the remaining 15.1% influenced by other variables. R^2 value of the Quality of EMR variable 0.021, this case shows that 2.1% of the Quality of EMR variable influenced by net benefit variable while the remaining 97.9% is influenced by other variables.

DISCUSSION

1) The Influence of Human Factors on Behavior Intention

The research results show that there is a significant positive influence of human factors on behavior intention. These results are in accordance with the original theory developed by research by Venkatesh et al (2003) which shows that performance expectations, effort expectations, social/ partners influences and facility conditions are determining factors of behavior intention.[11] The results of this research are also supported by several research results from Riditya et al (2022)[18]: Using Nuadu as an E-Assessment Using the Unified Theory of Acceptance and Use of Technology Method at the Pancasila Language Institute, also showing that performance expectations and the influence of partners have a significant positive influence behavior intention to use the Nuadu E-Assessment Platform.

Behavioral Intention influenced by performance expectations which describe the extent to which a person believes that using the system will help him to gain advantages in job performance, effort expectations which describe a person's perception of the level of ease associated with using the system as well as social/ partners influence which describes the extent to which an individual views that important people believed that he should use the new[11].

The managerial implications of these results are that the human factor consists of performance expectations, effort expectations and partners influence to users must continue to pay attention so that it will create an intention to use the system on an ongoing basis. Performance expectations, effort expectations and the partners influence really depend on the quality of the system used. For example, the implementation of information system (IS) must be able to help complete work more quickly, IS must be easy to operate, the hospital must support the provision and use of IS, and so on.

2) Influence Technological Factors on Behavior Intention

The research results show that there is no significant influence of technological factors

on behavior intentions. Technology actors have a significant positive effect on behavior intention to use through mediation of user satisfaction. These results are in accordance with the original theory built by research on the D&M IS Success Model theory which considers system quality and information quality to be important dimensions of the success of an information system. Causal modeling studies examine dimensions of success to determine whether there is a causal relationship between these technological factors and user satisfaction and behavior intentions. For example, higher system quality will result in higher user satisfaction. Use and user satisfaction are closely related. Use must precede user satisfaction. A positive experience of use will result in greater user satisfaction. Furthermore, increasing user satisfaction will increase the behavior intention to use, and then this will become use behavior.[12]

The implementation of IS in hospitals generally begins with "forced" or mandatory use of the system because in general IS is developed by vendors, then used by hospitals. User satisfaction or perhaps dissatisfaction with the system will emerge later after users use it. If the impact of this mandatory requirement is user satisfaction, it is hoped that the user's intention to use will be sustainable so that the system will be used sustainably (sustainability). Hospital management must ensure that IS technology factors can satisfy its users so that the intention to use SIMRS on an ongoing basis can be realized.

3) Influence Technological Factors on User Satisfaction

The research results show that there is a significant positive influence of technological factors on user satisfaction. This research is in line with research by Asyifa et al (2020) using the D&M IS Success Model theory as the basic theory using the Theory Acceptance Model as an intervening variable, showing that system quality, information quality, service quality and ease of use have a direct positive effect on user satisfaction.[19] The test results also show that ease of use as an intervening variable can mediate the influence of system quality, information quality and service quality on user satisfaction. User dissatisfaction in using the information system shows that the information system is not running optimally. DeLone and McLean (2003) say that a system can be said to be successful if the quality of the system used can help users in their work and have an impact on user satisfaction. User satisfaction will lead to continuous use behavior to help in completing daily tasks and work.

Technological factors in this research are assessed from 3 dimensions starting from system quality, information quality and service quality. System quality assessment, for example, through the assessment: "IS is easy to use and user friendly" and so on, information quality assessment: "IS is relevant to the system user's tasks" and so on, while service quality assessment: "If the application experiences problems with the information system, the IS officer immediately provide assistance" and so on. Hospital management must pay attention to these things so that they can satisfy users, so that the continuity of use and behavior of using IS as well as optimizing the relationship between humans and information systems to improve performance will always be maintained.

4) Influence Organizational Factors on Behavior Intention

The research results show there is a significant positive influence of organizational factors on behavior intention to use. Organizational or management support related to computer user behavior, such as: management support to socialize information system development that allows users to participate in system development, will have an effect on information system performance. The support provided by management for information systems can be a very important factor in determining the success of all activities related to information systems. The greater support provided by management will improve information system performance due to the positive relationship between management support in the development and operation process and information system performance.[20]

The organizational factor dimension consists of facility conditions, leadership support and organizational support. These three things must be maintained so that they will create an intention to use the system on an ongoing basis. For example, there must be sufficient equipment (facilities) to use the IS program and so on, leaders must be able to influence users for the successful implementation of IS and so on, the organization has carried out planning and

strategies for the successful implementation of IS and so on.

5) The Influence of User Satisfaction on Behavior Intention

The research results show there is a significant positive influence of organizational factors on behavior intention to use. These results are in accordance with the original research by DeLone & McLean (2003) which concluded that: Use of information systems must precede user satisfaction. Positive experiences using information systems will result in greater user satisfaction. Increasing user satisfaction will increase the behavior intention to use the information system and then this will become use behavior. Several research results that support this statement including research conducted by Veeramotoo et al (2018) which states that all dimensions of user satisfaction have a positive and significant relationship with behavior intention to reuse information systems (continuous use behavior).[21] These results are also in accordance with research by Ari and Putri (2022) which shows that the more users satisfaction with an information system, the more likely they are to reuse the system.[22]

User satisfaction must always be considered, namely: overall the user is satisfied with the performance of IS the user expresses his satisfaction with using IS, the user recommends to colleagues to use IS, the user hopes to continue using IS in the future, and so on. If these indicators are owned by system users, then the intention to use the system in a sustainable manner will be maintained.

6) The Influence of Behavior Intentions on Use Behavior

The research results show there is a significant positive influence of behavior intention on use behavior. This research is in line with research by Utami et al (2020): Analysis of Behavioral Intention and Use Behavior of Digital Wallet in Undergraduate Students at Semarang State University.[23] The results of the research show that behavioral intention has a positive and significant effect on the digital wallet use behavior of UNNES undergraduate students. Research by Putri & Suardhika (2020): Application of the UTAUT 2 Model to explain the behavior intention and use behavior of using e-money in Denpasar City.[24] The results of the research show that the behavior intention to use e-money variable influences the behavior of using e-money. The results of this research and these studies are in accordance with the Theory of Reasoned Action (TRA) which states that an individual's intention not to carry out or carry out a behavior is a direct determinant of the action or behavior. Individuals will carry out a behavior if they have the desire or intention (behavioral intention) to do so.

Hospital management must ensure that the intention to use the system is maintained through several indicators that must be present, including: users want to use this IS in their next jobs (intend), users predict that they will use this IS in their next jobs (predict), users plan to use IS in their next jobs (plan). If these things are fulfilled, the intention to use the system will become system use behavior.

7) The Influence of Use Behavior on User Satisfaction

The research results show there is no significant influence of use behavior on user satisfaction. Use behavior has a significant positive effect on user satisfaction through the mediation of net benefits. These results are in accordance with the original theory built by the research theory of DeLone & McLean IS Success Model (2003), that increasing user satisfaction will increase behavior intention to use, and then this will become use behavior. Net benefit will strengthen interest in using and the level of user satisfaction. User satisfaction can be said to be an attitude when a user will continue to use the system, if they feel the benefit (net benefit) and get satisfaction from the system. Meanwhile, system use is behavior towards the system used, user satisfaction and system use have given rise to attitudinal considerations in information system development. The high quality of information system services will influence the intensity of information system use. If the service quality is high, users will feel comfortable using the information system. Information with the best quality will increase the user's perceived usefulness and increase the use of the information system. If the information produced from an information system is of high quality, it will further increase the trust of users of the system. The higher the level of trust in the information, the greater the likelihood that someone will find the system useful. The higher the quality of information, the higher the level

of system use, thus the quality of a system's information can influence user satisfaction (Sari et al., 2022).[25]

Hospital management must be able to assess that system usage behavior has been realized, through several indicators, namely: users often/always use this IS to complete work (depth of use), users use this IS to complete routine work or main tasks (habit), In general, users enjoy working using this IS program (breadth of use). If these things are realized, then real positive benefits from using the system will be felt by users so that users will feel satisfied with using the system.

8) The Influence of Use Behavior on Net Benefits

The research results show there is a significant positive influence of use behavior on net benefits. The results of this research are in line with Jaafreh's research (2017): Evaluation of Information System Success: Application of the DeLone and McLean Information System Success Model in the Context of Banking Systems in KSA, showing that use behaviour has a significant positive influence on net benefits.[26] This result is in accordance with the previous theories, namely the Theory of Reason Action (TRA) by Davis (1989) stated that there is a relationship between user satisfaction and system use. The Theory of Acceptance Model (TAM) applies an understanding of attitudes towards the use of technology to predict the adoption and use of information technology.[27] Information user satisfaction can encourage system use. DeLone and McLean (2003) state that the use of information systems has a positive effect on net benefits. When system use increases significantly, it is hoped that users will obtain net benefits from using the information system.

9) The Effect of Net Benefits on User Satisfaction

The research results show there is a significant positive influence of net benefits on user satisfaction. These results are in line with research by Karya and Saputri (2020): The Influence of the DeLone and McLean Model on User Satisfaction among OVO Application Users in Surabaya which states that net benefits have a significant effect on information system user satisfaction.[28] This shows that the more benefits provided in the OVO application or the features that are always updated by the OVO application, the more frequently or satisfied customers will be in using the application. The results of these studies are in accordance with the theory of DeLone & McLean (2003) that as a result of system use and user satisfaction, net benefits will occur. If the implementation of the information system or service is continued, it is assumed that the net benefits of implementing the system can be positive, thereby influencing and strengthening use and user satisfaction.

10) The Influence of Net Benefits on Behavior Intention

The research results show there is a significant negative effect of net benefits on behavior intention to use. Net benefits have a significant positive effect on behavior intention to use after mediating user satisfaction. This pattern follows the initial formulation of the D&M IS Success Model which states that use and user satisfaction are closely related. Use must precede user satisfaction in a reasonable process, but positive experiences (net benefits) with use will result in greater user satisfaction in a causal sense. Thus, increasing user satisfaction will increase behavior intention to use, and thus will use. The results of this research are also in line with the research of Jaafreh (2017): Evaluation of Information System Success: Application of the DeLone and McLean Information System Success Model in the Context of Banking Systems in KSA, showing that net benefits have a significant positive influence on behavior intention to use.

Hospital management must be able to assess that the real benefits of using IS can be felt through several indicators, namely: using IS can improve employee task performance, using IS is efficient and effective in achieving employee work goals, using IS can reduce errors, using IS can help patient service and so on. If these things are realized, then real positive benefits from using the system will be felt by users and system users will feel satisfied, so that the continuity of their intention to use the system is always maintained.

11) Relationship between Human Factors and Technological Factors

The research results show there is a relationship (very strong) between human factors and technological factors. The results of this research are in accordance with the original research of Yusof et al (2006) which states that humans as users must be compatible with the

technology, because the use of information system technology is related to individual knowledge and beliefs. Delfia et al (2022) have conducted research: Evaluation of Health Information Systems with the HOT-Fit Model: Literature Review.[29] The research results show that the results of the analysis obtained 4 articles which prove that there is a relationship between human factors and system benefits. As human quality increases, the quality of benefits resulting from information systems will also increase. Human and technological factors will influence benefits if assessed simultaneously, but if assessed individually (technological factors and human factors) there is no relationship with benefits, this proves that technological and human factors cannot be separated from each other. Suitable human relationships as users of information technology must be established. Users who are in direct contact with the system have several things that influence their decision to use the system, namely the user believes that their performance will increase with the use of the system and that the system is easy to use. Users with information technology (IT) skills that are not sufficient to meet the requirements for the use or acceptance of the system should be made some efforts to ensure that their skills in using IT meet the requirements of the system itself. The results show the need for a 'fit' between humans and technology.

Hospital management must pay attention to things that influence users who are in direct contact with the information system to use the system. Users who have direct contact with information systems have several things that influence their decision making to use the system, for example users believe that their performance will increase with the use of the system, the system is easy to use, the system can reduce errors and so on.

12) Relationship between Technological Factors and Organizational Factors

The research results show there is a relationship (very strong) between technological factors and organizational factors. The results of this research are in line with the original research of Yusof et al (2006). The lack of conformity between the main elements of the organization contributes to many system failures that require organizational support. To realize the benefits of information technology, there are three prerequisites necessary for its successful transformation. First, the organization's vision and reasons must be clear to organizational members to prepare them for organizational change so as to reduce challenges in managing transformation. Second, the organization's corporate strategy, information technology, and organizational dimensions must be aligned with each other. Third, a strong information technology infrastructure such as electronic networks and well-understood standards should be provided by the organization. These three prerequisites and internal and external suitability can be used to identify implementation problems in the field of information technology (Yusof et al, 2006).

Hospital management must pay attention that employee solidarity, support between employees, constant use of the system are components that encourage the use of a system. The contribution of health information systems can produce benefits and profits for users and organizations. For organizations, the system contributes to the organization's mission and vision, increasing the organization's ability to be more efficient and effective in serving the community, improving relationships between organizations, and increasing organizational competence in facing competition in health services. Support from the organization or management can generate enthusiasm to increase responses/impressions of the benefits of technological factors.

13) Relationship between Human Factors and Organizational Factors

The research results show there is a relationship (very strong) between human factors and organizational factors. This result is in accordance with the original theory of Yusof et al (2006) which states that an organization is a formal collection of people and their resources that cannot be separated to achieve goals. One form of suitability of this relationship is, for example, if certain individuals or users do not have the skills to use the system, then management or the organization is responsible for providing the necessary training. Hospital information systems (SIRS) are useless unless doctors use them, and doctors will not use them if there are barriers preventing use of the system. Barriers to using SIRS are also important to consider in SIRS evaluation because they can explain the failures and successes of the system (Yusof et al, 2006). To achieve a successful management information system (MIS) that has

a positive impact on the organization, the information system must first have an impact on individuals. SIM will ultimately influence users to accept technology so that it can improve employee performance and productivity (Thenata et al, 2019).[30]

Management must ensure that the implementation of the hospital management information system (HMIS) is successful and has a positive impact on the organization. Information systems must first have an impact on individuals. HMIS will ultimately influence users to accept technology so that it can improve employee performance and productivity. Hospital management information systems is useless unless the users use them, and users will not use them if there are obstacles that hinder the use of the system. Barriers to using HMIS are important for HMIS evaluation because they can explain the failure and success of implementing the system.

14) The influence of Net Benefits on the EMR Quality

The research results show there is a significant positive effect of net benefits on the quality of electronic medical records (EMR). DeLone and McLean (2003) explain that net benefits will emerge as a result of the use and user satisfaction of information system users. User satisfaction is the extent to which information system applications can help users to create value for users (DeLone & McLean 2003). The user's decision to use a system or not will depend greatly on the quality of the system. The quality referred to is how much the system can support the tasks or decisions taken by its users in carrying out their daily work. If the system cannot support the user's work and is even burdensome, then of course the user will not use the system. Likewise, compliance with the use of the system will greatly depend on the quality of a system. If the use of the system cannot help, then compliance with using the system will not occur. In other words, user satisfaction with the quality of a system will influence the successful implementation and running of the system, including in this case the EMR program (Lucas, 2022).[31] The results of this research are in line with the research of Viana et al (2023): Evaluation of the Hospital Management Information System in the Medical Records Unit at RSPAL Dr. Ramelan Surabaya Using the DeLone and McLean Method, the results show that the variable with the highest score interpretation percentage is the net benefit variable of 90%. The use of hospital management information system (HMIS) provides benefits for users, including HMIS can save users time in completing work, HMIS can save on procurement of medical record formulas, and SIMRS can help improve user performance (Viana et al, 2023).[32]

User satisfaction is the extent to which information system applications can help users to create value for users. User satisfaction with the quality of a system will influence the successful implementation and running of the system. Real benefits will emerge as a result of the utilization and satisfaction of information system users. In relation to the quality of electronic medical records, the real benefits are a kind of proof that if the implementation of HMIS is accepted and considered successful, the quality of electronic medical records will be good.

CONCLUSION

The research results show that there is a significant positive influence between : human factors, organizational factors and user satisfaction on behavior intentions; use behavior towards net benefits; net benefits and technological factors on user satisfaction; technological factors and net benefits on behavior intentions through mediation of user satisfaction; use behaviour towards user satisfaction through the mediation of net benefits. There is a very strong significant correlation between the three human-technology-organization factors and finally there is a significant influence of net benefits on the quality of electronic medical records.

Based on the results of this research analysis, it can be stated that the findings of this research are as follows:

1) Technological factors have a significant positive effect on behavior intention to use after mediating user satisfaction

This finding answers the insignificant hypothesis (H_2), namely the influence of technological factors on behavior intentions. The influence of technological factors on behavior intention is not direct but must first go through user satisfaction before behavior intention to use will arise.

2) Net benefits have a significant positive effect on behavior intention to use after mediating user satisfaction
This finding answers the hypothesis that the results are significant but the estimated value is negative (H_{10}), namely the influence of net benefits on behavior intention to use. Net benefits have a significant positive effect on behavior intention to use after user satisfaction as an intervening variable.

3) Use behavior has a significant positive effect on user satisfaction through net benefits
This finding answers the insignificant hypothesis (H_7), namely the influence of use behavior on user satisfaction. The influence of use behavior on user satisfaction is not direct but must be through net benefits that are felt first before user satisfaction will arise.

4) The contribution of adding new variables to this research, namely use behaviour and then assessing its influence on net benefits (significant), further complements the 3 indirect influence findings mentioned above so that the results of this study prove that the postulates of the D&M IS success model theory are still relevant, proven based on the results of this study, namely: "that use must precede user satisfaction, but positive use will result in higher user satisfaction. Together, increasing user satisfaction will increase behavior intention to use and then use. Net benefits will strengthen interest in using (behavior intention to use) and the level of user satisfaction".

5) The next contribution of this research is to add a new variable for the quality of electronic medical records after the real benefit variable. The addition of electronic medical record quality variables is a kind of proof that if SIMRS implementation is accepted and considered successful, the quality of electronic medical records will be good. The results of this study show that real benefits have a significant positive effect on the quality of electronic medical records implementing SIMRS-GOS V2.

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