
MODEL FOR IMPROVING THE PERFORMANCE OF HOSPITAL MANAGEMENT INFORMATION SYSTEM SERVICES THROUGH TRANSFORMATIONAL LEADERSHIP

Kosidin^{*1,2}, Munir^{*3}, Puspo Dewi Dirgantari⁴, Asep Wahyudin³

¹ Doctoral Program of Management, Faculty of Economic and Business Education
Universitas Pendidikan Indonesia

² Informatic Engineering STMIK Jabar, Indonesia

³ Faculty of Mathematics and Sciences Education Universitas Pendidikan Indonesia

⁴ Faculty of Economic and Business Education Universitas Pendidikan Indonesia

Email: ¹kosidin@stmikjabar.ac.id, ³munir@upi.edu, ⁴puspodewi@upi.edu,

³away@upi.edu

ABSTRACT

The role of Transformational Leadership in hospital organizations is very important, where hospitals are organizations that have a complex environment, there is a lot of unclear information. With the increase in health services to the community along with changes in demographics, changes in health service technology, and the adoption of new information technology. So performance measurement is important in order to improve the quality of health services. The aim of this research is to find out how transformational leadership influences the success of hospitals management information systems (HMIS). The method used was a quantitative descriptive and verification survey with 181 respondents from 15 hospital in the city of Bandung. The sampling technique uses proportionate stratified random sampling. Data analysis using structural equation modeling (SEM) with partial least squares (PLS). The findings of the proposed hypothesis are that the quality of technology, transformational leadership, and users have a significant effect on service performance. Users can mediate technology quality, transformational leadership and service performance. Conclusion of the study is the novelty of the development of the information system success model by adding the context of transformational leadership in evaluating the success of the information system, where transformational leadership has a positive effect on improving the performance of hospital management information system services through users. Implications of the results of this study contribute to the development of an information system success model that can be used to evaluate the success of information systems in general.

How to cite: Kosidin, et al(2024). Model For Improving The Performance Of Hospital Management Information System Services Through Transformational Leadership. *Journal Eduvest*. 4(10): 8748-8764
E-ISSN: 2775-3727
Published by: <https://greenpublisher.id/>

KEYWORDS

Transformational Leadership, Services Performance, HMIS



This work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International

INTRODUCTION

Health service measurement is very important to do (Lu et al., 2020; Bates et al., 1999), various measurement processes in general have been carried out, such as measuring structure, process, and outcomes (Burstin et al., 2016; Rublee, 1989). Evaluation of the quality of health services by determining how well the service meets user expectations (Lu et al., 2020), because hospitals are complex organizations with unclear information (Hübner-Bloder & Ammenwerth, 2009) requiring organizational changes and the evolution of medical technology is characterized by more and more things to do, more things to manage, more things to pay attention to and more people involved (Neighbours & Pollitt, 2003). Changes in hospital management and adoption of new information technology are problems in health services (Jiang et al., 2020). In accordance with the regulation of the Government of the Republic of Indonesia Number: 46 of 2014 concerning the health information system, every hospital must have implemented a hospital management information system (HMIS). HMIS has a very strategic role in health services as an effort to increase competitiveness (Darmawan & Hendyca Putra, 2020). However, in the implementation of the health system there was a failure due to low user acceptance (Southon, 1999). It is estimated that each new health information developed and implemented will take around 18 months to be operational properly (Lee et al., 2008), with the costs incurred being very large (Mohamadali & Garibaldi, 2010).

The performance of the quality of hospital management information systems is still incompatible between the quality of technology and the process of providing services to patients (H P et al., 2017). While the success of implementing an information system is based on user desires (Hamrul et al., 2013). The failure and success of a hospital information system depends on user acceptance of new technology (Southon, 1999). The use of new technology in health services is often evaluated inappropriately, so that evaluation is considered an activity that contributes negatively to the progress of health organizations (Heathfield et al., 1998). Another factor in the failure of implementing health information systems is the finding that health professionals are reluctant to accept and develop information technology (Schaper & Pervan, 2007). These critical issues can be addressed by the conceptual paradigm (Jonagaddala et al., 2020) through transformational leadership that can encourage and foster organizational culture in the use of information systems (Moynihan et al., 2012). Transformational leadership has an influence on users through user satisfaction and perceived benefits (Rezvani, Dong, et al., 2017; Rezvani, Khosravi, et al., 2017).

Transformational leadership is very important in the success of information system implementation (Faradina & Mabur, 2023), has implications for higher effectiveness in the organization (Ghasabeh et al., 2018) so that it can encourage the use of information technology effectively (Ghasabeh, 2020) and can influence user behavior that has a positive impact on the organization (Sadeghi et al., 2002) so that users have positive attitudes towards the organization (Farahnak et al., 2020). A hospital must organize and manage information technology well (Purnawan & Surendro, 2016), through the concept of transformational leadership to align with the goals, vision, and mission (Elkhani et al., 2014) so that the benefits of information system service performance can be felt (Ross, 2011).

Information and communication technology (ICT) can support quality in ICT engineering and management (Lepmets et al., 2021). Technological innovation plays an important role in supporting humans towards sustainable development. The development of science and technology has currently experienced a new evolution that really supports sustainable environmental development in various fields, especially in the health sector. This challenge needs to be supported by scientific and technological innovation (Liang et al., 2023). Information technology can be utilized optimally in work, but its implementation requires adapting and developing technology according to the needs of users (Tarigan et al., 2020). so that user satisfaction with information systems is an important factor in developing service quality (Novendra et al., 2022) in measuring the success of information systems from user perceptions (Kesharwani et al., 2021).

From the problems above, this study evaluates the success of the hospital management information system through transformational leadership, and uses the information system success model (DeLone & McLean, 2003). The purpose of this study is twofold. First, to explain the factors that influence the success of implementing a hospital management information system through transformational leadership (TL). Second, develop a model of information system success used in identifying and measuring what significantly influences the implementation of HMIS in 15 hospitals in Bandung. Identification of the problem of the significant influence of technology quality, transformational leadership, users on service performance, and users can mediate technology quality, transformational leadership with service performance. The method used is a quantitative descriptive and verification survey with 181 respondents. The sampling technique uses proportionate stratified random sampling. Data analysis uses a structural equation model (SEM) with partial least square (PLS).

Theoretical Foundation

The evaluation of the success of the information system in this study adapts the DeLone and McLean 2003 model theory by adding transformational leadership theory (Bass, 1999), as a model for measuring the performance of hospital information system services.

DeLone McLean Model

The DeLone & McLean (D&M) 2003 model consists of information quality variables, coverage of indicators that are easy to understand, data accuracy, data completeness, and accuracy of information presentation. Both system qualities include ease of use, learning, speed of access, and flexibility. Three service qualities include the responsiveness of system developers, and the technical competence of IT staff. Of the three variables in this study, they are represented by the technology quality variable as in the model developed by (Yusof et al., 2008), which is the technological context. User variables, intention to use, and user satisfaction become user variables, and net benefits become service performance variables.

The effective use of technology quality as an important component in health service performance (Chiasson et al., 2007) as an investment by health organizations for the continuity of business processes (Kim & Kim, 2021) with the aim of providing safer and more efficient health services (Cresswell et al., 2010). Health service information systems need to pay attention to the suitability between information technology and health work systems (Holden & Karsh, 2010) and with other service standards in order to improve patient service performance (Shaw, 2002). The implementation of information technology in health services was partially successful but failed to be implemented in other health services (Tsiknakis & Kouroubali, 2009). The indicator of information technology success is measured by the level of user satisfaction (Mahmood et al., 2000). Therefore, the first hypothesis proposed is:
H1: Technology quality has a significant positive effect on users and service performance.

Barriers to implementing health information systems are user aspects, such as refusing to use information systems in services (Kruse, Kothman, et al., 2016; Kruse, Kristof, et al., 2016), while important factors for the success of implementing information systems are user acceptance or satisfaction (Meraji et al., 2022) which assesses in terms of use, experience, knowledge, expectations, and training (Maise Putra et al., 2021). User perspectives on the success of implementing a hospital information system from system function, technical, management, less than optimal training (Murphy et al., 2019), and user understanding of how to use the system (Bain et al., 2020). And positive feelings in using the system, so that user satisfaction is achieved (Ebnehoseini et al., 2022). The second hypothesis is:
H3: Users have a significant positive influence on service performance.

Service quality and information quality as determinants of the influence on the impact of perceived benefits (Al-Azawei & Al-Azawi, 2021) such as service performance. Performance measurement is an important thing to improve the quality of health services (Jiang et al., 2020). Users can have a positive effect on the benefits perceived as service performance (Cao et al., 2021). As users, humans have a high category value as a determining factor for the success of information systems (Wirajaya & Nugraha, 2022), with the impact of usability felt by users and health organizations

(Al-Okaily, Ping, et al., 2021), as a result of the use of effective information systems in achieving health service performance (Al-Okaily, Al-Okaily, et al., 2021). Various references that users can mediate the quality of technology with the impact of perceived benefits, then the hypothesis proposed is:

H4: Users can mediate technology quality, transformational leadership and service performance.

Transformational Leadership Theory

Transformational leadership has an important role in organizational performance (Moradi & H, 2016) and can improve employee performance (Parulian et al., 2023). Transformational leadership is an individual who has the power to influence the attitudes and individuals of subordinates which has a positive impact on the organization (Sadeghi et al., 2002). Transformational leadership supports the use of information systems (Moynihan et al., 2012) and is a determining factor in the success of implementing innovation in organizations (Farahnak et al., 2020), such as the success of adapting information systems and information technology (Aldholay et al., 2018). Information technology can be managed by transformational leaders (Ghasabeh, 2020) through system users for the effectiveness of information system success (Cho et al., 2011). The fourth hypothesis proposed is:

H2: Transformational Leadership can significantly influence users and service performance.

Performance Services Theory

Measuring service performance is important for improving the quality of health services (Jiang et al., 2020). The performance of health service information systems can be measured by various indicators ((Si et al., 2017) such as efficiency, effectiveness, error reduction, and service performance (Carini et al., 2020) of services provided by doctors, nurses, and other staff (Weiner et al., 2006). But the quality of information system services is not an important factor in user satisfaction (Sun et al., 2014).

RESEARCH METHOD

Research Design

Research Samples

The sample used in this study was 181 data use HMIS from 15 hospitals in Bandung City. There are 2 hospitals in cluster A, 6 hospitals in cluster B, and 7 hospitals in cluster C, with the types of users as leaders 2%, management 10%, doctors 14%, nurses 46%, administration 17%, IT staff 7%, pharmacists 1%, medical recorders 1% and technicians 1%. The sampling technique is proportionate stratified random sampling.

Operationalization of Measurement

Independent variables in this study are technology quality, transformational leadership, the dependent variable is service quality, and the mediator variable is users. All items of variable measurement indicators are adopted from existing literature and explained on the theoretical basis above. This study uses a 5-point Likert scale, 1 to 5 (strongly disagree to strongly agree) in measuring the questionnaire items in the study.

Data Analysis

The data analysis process with a descriptive and verification approach is quantitative, the analysis of measurement and structural models uses structural equation modeling (SEM) partial least square (PLS) as data processing. Data analysis was carried out on 181 data from 210 samples with a tolerance of 0.05% using the Slovin formula (Suliyanto, 2006), to meet the minimum sample size criteria for SEM analysis between 100 - 200 samples (Hair Jr et al., 2021). The testing carried out in descriptive analysis is to explain the respondents' responses to all questionnaire indicators using assessment criteria (Sekaran & Bougie, 2016), meanwhile, in the verification, measurement and structural model analysis was carried out, namely reliability validity testing using Cronbach's alpha, composite reliability (CR), and convergent validity (average variance extracted) (AVE), discriminant validity, collinearity, coefficient of determination (R²), predictive relevance (Q²), effect sizes (F²), model fit testing, and hypothesis testing using bootstrap procedures (Hair et al., 2014).

RESULT AND DISCUSSION

Results

Respondent Demographics

Respondent demographics are as presented in table 1. In general, respondents are presented based on hospital clusters, user status, education, gender, and work experience. Information in table 1 shows that the majority of respondents are mostly from cluster C. The users are mostly nurses, then the female gender is the largest, the most education is bachelor's degree, and work experience is dominated by experience of less than one year. The majority of work experience of less than one year can be relied upon to represent system users and undergraduate education.

Table 1. Respondents' Background

Background	Information	Amount	Presentation	Background	Information	Amount	Presentation
Cluster	A (2)	15	8%	Education	SMA/SMK/MA	2	1%
	B (6)	72	40%		D-3	27	15%

Users	C (7)	94	52%	S-1	118	65%		
	Nursing	84	46%		S1 Profesi	6	3%	
	Administration	31	17%		S-2	28	15%	
	Doctor	25	14%		Gender	Female	48	27%
	Management	18	10%		Male	133	73%	
	IT Staff	12	7%		Work Experience	0-1 Year	68	38%
	Leader	4	2%		1-2 Year	39	22%	
	Pharmacist	2	1%		3-5 Year	30	12%	
	Midwifery	2	1%		6-10 Year	20	11%	
	Technisi	2	1%		> 10 Year	24	13%	
Medical Check Up	1	1%						

Measurement Model Analysis

The results of the descriptive analysis show that all variables are at the very high criteria with a value greater than 4.20 according to the interval criteria value. Measurement model analysis, measuring the reliability and validity of questionnaire items and representing them as loading factors. The criteria or limit value for items considered reliable is 0.7 and above for the average variance extracted (AVE) value. Furthermore, Cronbach's alpha (α) and composite reliability (CR) are used as criteria for measuring the reliability of the internal consistency of the variables. The values used to meet the criteria are above 0.5 for (α), and above 0.7 for (CR) (Hair et al., 2014). The results of the validity and reliability tests are presented in table 2.

Table 2. Validity and Reliability Test Results

Variable Laten	Item	Loading	CA	CR	AVE	Variable Laten	Item	Loading	CA	CR	AVE
Services Performance	PS1	0,701	0,709	0,819	0,532	User	US1	0,792	0,713	0,818	0,53
	PS2	0,782					US2	0,708			
	PS3	0,738					US3	0,671			
	PS4	0,692					US4	0,737			
Technology Quality	TQ1	0,864	0,823	0,88	0,649	Transformational Leadership	TL1	0,724	0,766	0,85	0,587
	TQ2	0,802					TL2	0,836			
	TQ3	0,82					TL3	0,744			
	TQ4	0,73					TL4	0,756			

From table 2. The factor loading values for items PS4 and US3 do not meet the criteria, so they are removed from the model, while the other items meet the reliability criteria test above 0.5 ranging between 0.701 and 0.864. The values of α , CR, and AVE meet the reliability test criteria and are higher than the minimum value of each criterion, thus the measurement of variables in this study is reliable.

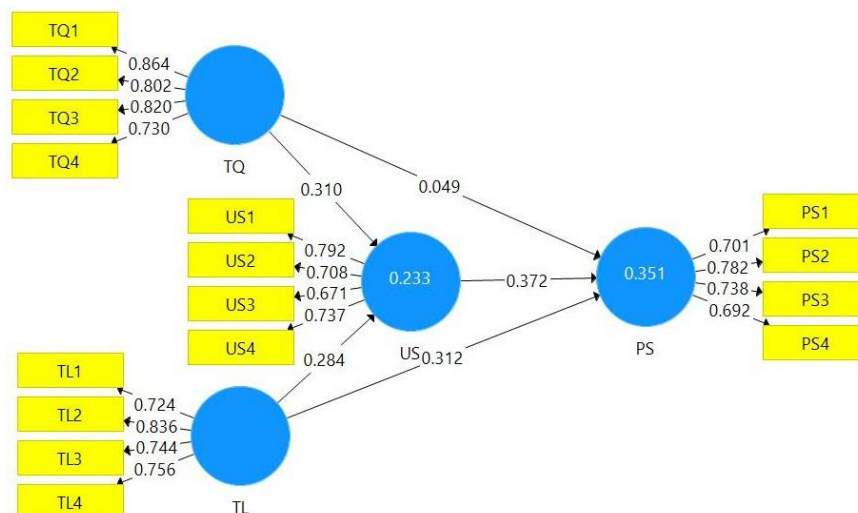
The next test is the construct validity test using discriminant validity by comparing the correlation value and the square root of the AVE of each variable. The results in table 3. Show that the intercorrelation value is lower than the square root value of AVE. Thus, the validity of the measurement instrument in this study is validated. Figure 1. Measurement model in the study.

Table 3. Discriminant Validity

	PS	TQ	US	TL
PS	0,729			
TQ	0,297	0,805		
US	0,511	0,401	0,728	
TL	0,470	0,320	0,383	0,766

Structural Model Analysis

The next analysis carried out was to test collinearity using the variance inflation factor (VIF) value with the criteria that a VIF value below 3 does not indicate collinearity (Hair Jr et al., 2021). Results of the collinearity test for all variables have a VIF value of less than 3, so there is no multicollinearity.



Figur 1. Measurement Model

Next, the predictive relevance (Q2) test is used to predict the endogenous variable construct that is predicted by the exogenous construct. The criteria used are if the Q2 value is > 0 , then the model has predictive relevance (Hair et al., 2014). The test results show that the endogenous variables US and PS have values of 0.120 and 0.176, thus any changes in the US and PS variables can be predicted by other variables that influence them.

Next, the effect sizes (F2) test analysis is carried out to determine the effect of the variable values in the structural model. The criteria used refer to (Hair et al., 2014), a value of 0.02 has a low effect, 0.15 has a medium effect, and above 0.30 has a high effect. The test results of TQ against PS 0.003, very low, TQ against PG 0.112, moderate effect, PG against PS 0.163 has a moderate effect, TL against PS and PG 0.123 and 0.095 low effect. Furthermore, model fit testing is carried out, aiming to determine how good the empirical data is with the proposed model. This criterion uses standardized square root-mean residual (SRMR) (Malhotra, 2019), a value of less than 0.05 has a good fit, 0.05-0.10 the model is still acceptable (Schermelel-Engel et al., 2003). The test results show an SRMR value of 0.095, with this the model fits and can be accepted.

For testing the proposed hypothesis using the bootstrap procedure. The significance testing criteria are below 5% if the t-statistic value is > 1.962 and ρ value is > 0.005 then the hypothesis is accepted (Hair et al., 2014). The hypothesis proposed in this study are four hypotheses, H1 technology quality has a significant positive effect on users and service performance, H2 Transformational Leadership can significantly affect users and service performance, H3 users have a significant positive effect on service performance, and H4 users can mediate technology quality, transformational leadership and service performance. The test results are as table 4.

Table 4. Hypothesis Testing Results

Hypothesis	T Statistics	P Values	Result	Hypothesis	T Statistics	P Values	Result
TQ -> PS	0,439	0,661	Rejected	TL -> US	3,381	0,001	Accepted
TQ -> US	5,065	0,000	Accepted	TQ -> US -> PS	3,493	0,001	Accepted
US -> PS	4,937	0,000	Accepted	TL -> US -> PS	3,305	0,001	Accepted
TL -> PS	3,998	0,000	Accepted				

The final step of the structural model analysis is the determination coefficient test (R2 square). The R2 criteria refer to (Hair Jr et al., 2021), the range of values 0 - 1 has a higher explanation, an R2 value of 0.25 is considered low, an R2 value of 0.50 is considered moderate, and an R2 value of 0.75 is considered substantial. R2 test results for the variable PS were 0.351. This test result has a low influence of 35% which is explained by the TQ, TL, and variables PG. R2 value of the variable US is 0.233,

indicating that it has a low influence of 23% which is explained by the variables PQ and TL.

Discussion

Results of the descriptive analysis of all variables in the study showed that the respondents' responses to the measurement items were very good with a very high criteria level at a value above 4.20 for all variables using a 5 Likert scale at intervals. The results of the validity and reliability tests for all variables meet the required criteria values for CA, CR, and AVE values, so that the measurement model has very good validity and reliability.

The results of the proposed hypothesis testing were accepted, except for hypothesis H1, namely that technology quality has a significant positive effect on service performance, which was not accepted. For other hypotheses accepted. Hypothesis H1 proposed that the quality of technology has a significant positive effect on users, the test results show a significant effect between the quality of technology on users, which means the hypothesis is accepted. The direction of the relationship between technology quality and users shows a positive relationship that when there is an increase in technology quality, users will increase and vice versa. This result is in line with research (Mohamadali & Garibaldi, 2010).

The results of testing the second hypothesis show a significant influence between transformational leadership on users and service performance, the hypothesis is accepted. The direction of the transformational leadership relationship shows a positive relationship, that is, when there is an increase in transformational leadership, users and service performance will increase and vice versa. This result is in line with the research (Aldholay et al., 2018). The next result of the third hypothesis test shows that there is a significant influence between users on service performance, the hypothesis is accepted. The direction of the user-user relationship shows a positive relationship when there is an increase in users, then service performance will increase and vice versa. The results of this hypothesis are in line with the results of research conducted by (Putri & Aisyah, 2024).

The fourth hypothesis test shows that users can mediate between technology quality, transformational leadership and service performance, so the proposed hypothesis is accepted. The results of this study are in line with research by (Parulian et al., 2023; Al-Okaily, Ping, et al., 2021). The success of implementing information systems cannot be separated from user factors, this can strengthen the fact that users can mediate transformational leadership and service performance.

This study produces a new model for evaluating the success of information systems adding a transformational leadership context. This study is different from several previous studies in evaluating the success of hospital management information systems, such as research (Aziz & Rahayu, 2022) analyzing the success parameters of hospital management information systems (SIMRS) using the DeLone and Mclean model with no updates to the model. Bossen's 2013 study, comprehensively evaluated based on the DeLone and McLean information system success model for health

information systems using a combined method. The study did not add a new context. Results of study showed that system quality greatly influenced health information system (Bossen et al., 2013). Research conducted by Mehdi 2014, investigated the success of implementing a hospital information system, the results of this study added novelty, namely individual impact, group impact, and organizational impact (Mahdavian et al., 2014). Febrita's research results stated hospital management information system requires an organizational role in its implementation. This study emphasizes the importance of organizational support for the success of information system implementation (Febrita et al., 2021). DeLone and McLean model was also used by Muhammad in his research to evaluate success factors of hospital information systems. Model in this study adds organizational context in influencing perceived benefits (Muhammad & Arief, 2020).

CONCLUSION

This study proposes the development of the Delone and McLean information system success model through technology quality, transformational leadership as independent variables, users and service/benefit quality as dependent variables. The technology quality variable has a significant effect on the user variable, while it has no effect on service performance. Transformational leadership variables have a significant influence on user variables and service performance. User variables as mediator variables, can mediate between technology quality, transformational leadership and service performance. Thus, the results of this study contribute to the development of a model for the success of information systems specifically for hospital management information systems, but this model can also be applied to evaluate the success of other information systems.

After conducting an analysis using quantitative methods, the results of this study provide an overview of the important factors that can influence the success of information system implementation. However, this research needs to be evaluated using qualitative methods, either through interviews with users of the hospital management information system.

REFERENCES

- Al-Azawei, A., & Al-Azawi, R. (2021). Evaluating Facebook success in Iraq: An extension of the DeLone and McLean's model of information systems success (ISS). *Journal of Physics: Conference Series*, 1804(1). <https://doi.org/10.1088/1742-6596/1804/1/012114>
- Al-Okaily, A., Al-Okaily, M., Ai Ping, T., Al-Mawali, H., & Zaidan, H. (2021). An empirical investigation of enterprise system user satisfaction antecedents in Jordanian commercial banks. *Cogent Business and Management*, 8(1). <https://doi.org/10.1080/23311975.2021.1918847>
- Al-Okaily, A., Ping, T. A., & Al-Okaily, M. (2021). Towards business intelligence success measurement in an organization: A conceptual study. *Journal of System*

- and Management Sciences*, 11(2), 155–170.
<https://doi.org/10.33168/JSMS.2021.0210>
- Aldholay, A. H., Isaac, O., Abdullah, Z., & Ramayah, T. (2018). The role of transformational leadership as a mediating variable in DeLone and McLean information system success model: The context of online learning usage in Yemen. *Telematics and Informatics*, 35(5), 1421–1437.
<https://doi.org/10.1016/j.tele.2018.03.012>
- Aziz, A. S., & Rahayu, R. (2022). Analisis Parameter Keberhasilan Sistem Informasi Manajemen Rumah Sakit (Simrs) Dengan Metode Delone Dan Mclean (Pada Rumah Sakit Swasta Di Kota Padang). *Syntax Literate: Jurnal Ilmiah Indonesia*, 7(12), 1–23.
- Bain, C., Goswami, A., Lloyd, S., & Davis, L. (2020). Post-implementation evaluation of a digital dictation system in a large health service using hot-fit framework. *Asia Pacific Journal of Health Management*, 15(4), 1–11.
<https://doi.org/10.24083/APJHM.V15I4.339>
- Bass, B. M. (1999). Two Decades of Research and Development in Transformational Leadership. *European Journal of Work and Organizational Psychology*, 8(1), 9–32. <https://doi.org/10.1080/135943299398410>
- Bates, D. W., Pappius, E., Kuperman, G. J., Sittig, D., Burstin, H., Fairchild, D., Brennan, T. A., & Teich, J. M. (1999). Using information systems to measure and improve quality. *International Journal of Medical Informatics*, 53(2–3), 115–124.
[https://doi.org/10.1016/S1386-5056\(98\)00152-X](https://doi.org/10.1016/S1386-5056(98)00152-X)
- Bossen, C., Jensen, L. G., & Udsen, F. W. (2013). Evaluation of a comprehensive EHR based on the DeLone and McLean model for IS success: Approach, results, and success factors. *International Journal of Medical Informatics*, 82(10), 940–953.
<https://doi.org/10.1016/j.ijmedinf.2013.05.010>
- Burstin, H., Leatherman, S., & Goldmann, D. (2016). The evolution of healthcare quality measurement in the United States. *Journal of Internal Medicine*, 279(2), 154–159. <https://doi.org/10.1111/joim.12471>
- Cao, Q., Chen, A. N. K., Ewing, B. T., & Thompson, M. A. (2021). Evaluating information system success and impact on sustainability practices: A survey and a case study of regional mesonet information systems. *Sustainability (Switzerland)*, 13(13). <https://doi.org/10.3390/su13137260>
- Carini, E., Gabutti, I., Frisicale, E. M., Di Pilla, A., Pezzullo, A. M., de Waure, C., Cicchetti, A., Boccia, S., & Specchia, M. L. (2020). Assessing hospital performance indicators. What dimensions? Evidence from an umbrella review. *BMC Health Services Research*, 20(1), 1–13. <https://doi.org/10.1186/s12913-020-05879-y>
- Chiasson, M., Reddy, M., Kaplan, B., & Davidson, E. (2007). Expanding multi-disciplinary approaches to healthcare information technologies: What does information systems offer medical informatics? *International Journal of Medical Informatics*, 76, S89–S97. <https://doi.org/10.1016/j.ijmedinf.2006.05.010>
- Cho, J., Park, I., & Michel, J. W. (2011). How does leadership affect information

- systems success? the role of transformational leadership. *Information and Management*, 48(7), 270–277. <https://doi.org/10.1016/j.im.2011.07.003>
- Cresswell, K. M., Worth, A., & Sheikh, A. (2010). Actor-Network Theory and Its Role in Understanding the Implementation of Information Technology Developments in Healthcare. *BMC Medical Informatics and Decision Making*, 10(1), 1–11.
- Darmawan, M. A., & Hendyca Putra, D. S. (2020). Evaluasi Kesuksesan Sistem Informasi Manajemen Rumah Sakit dengan Metode Delone and Mclean. *J-REMI : Jurnal Rekam Medik Dan Informasi Kesehatan*, 1(3), 174–185. <https://doi.org/10.25047/j-remi.v1i3.2020>
- DeLone, W. H., & McLean, E. R. (2003). The DeLone and McLean model of information systems success: A ten-year update. *Journal of Management Information Systems*, 19(4), 9–30. <https://doi.org/10.1080/07421222.2003.11045748>
- Ebnehoseini, Z., Tabesh, H., Deghatipour, A., & Tara, M. (2022). Development an extended-information success system model (ISSM) based on nurses' point of view for hospital EHRs: a combined framework and questionnaire. *BMC Medical Informatics and Decision Making*, 22(1), 1–17. <https://doi.org/10.1186/s12911-022-01800-1>
- Elkhani, N., Soltani, S., & Ahmad, M. N. (2014). The effects of transformational leadership and ERP system self-efficacy on ERP system usage. *Journal of Enterprise Information Management*, 27(6), 759–785. <https://doi.org/10.1108/JEIM-06-2013-0031>
- Faradina, R., & Maburur, A. (2023). Role of Transformational Leadership in the Successful Implementation of Information Systems in the Government Sector. *Jurnal Pajak Dan Keuangan Negara (PKN)*, 5(1), 163–174. <https://doi.org/10.31092/jpkn.v5i1.2293>
- Farahnak, L. R., Ehrhart, M. G., Torres, E. M., & Aarons, G. A. (2020). The Influence of Transformational Leadership and Leader Attitudes on Subordinate Attitudes and Implementation Success. *Journal of Leadership and Organizational Studies*, 27(1), 98–111. <https://doi.org/10.1177/1548051818824529>
- Febrita, H., Martunis, Syahrizal, D., & Abdat, M. (2021). ANALYSIS OF HOSPITAL INFORMATION MANAGEMENT SYSTEM USING HUMAN ORGANIZATION FIT MODEL Analisis Sistem Informasi Manajemen Rumah Sakit dengan Model Human Organization Technology Fit. *Jurnal Administrasi Kesehatan Indonesia*, 9(1), 23–32.
- Ghasabeh, M. S. (2020). Transformational Leadership, Information Technology, Knowledge Management, Firm Performance: How Are They Linked? *Scholar.Valpo.Edu*, 13(2).
- Ghasabeh, M. S., Soosay, C., & Reaiche, C. (2018). The emerging role of transformational leadership Special Issue on Sydney Conference Held in April 2015 THE EMERGING ROLE OF. *The Journal of Developing Areas*, 49(6), 459–467.
- H P, D. S., Puspitasari, T. D., & Roziqin, M. C. (2017). Analisis Jalur Kualitas Sistem

- Terhadap Kepuasan Pengguna dan Intensitas Pengguna SIMRS Dengan Metode De Lone dan Mc Lean di Rumah Sakit Balung Kabupaten Jember. *Techno.Com*, 17(1), 36–47. <https://doi.org/10.33633/tc.v17i1.1585>
- Hair, J. F., M. Hult, G. T., M. Ringle, C., & Sarstedt, M. (2014). A Primer on Partial Least Squares Structural Equation Modeling. In *Sage* (Vol. 46, Issues 1–2). <https://doi.org/10.1016/j.lrp.2013.01.002>
- Hair Jr, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S. (2021). *Partial least squares structural equation modeling (PLS-SEM) using R: A workbook*. Springer Nature.
- Hamrul, H., Soedijono, B., & Amborowati, A. (2013). Mengukur Kesuksesan Penerapan Sistem Informasi Akademik (Studi Kasus Penerapan Sistem Informasi Stmik Dipanegara Makassar). *Seminar Nasional Informatika 2013, 2013(semnasIF)*, 140–146.
- Heathfield, H., Pitty, D., & Hanka, R. (1998). Evaluating information technology in health care: barriers and challenges. *BMJ*, 316(7149), 1959–1961. <https://doi.org/10.1136/bmj.316.7149.1959>
- Holden, R. J., & Karsh, B. T. (2010). The Technology Acceptance Model: Its past and its future in health care. *Journal of Biomedical Informatics*, 43(1), 159–172. <https://doi.org/10.1016/j.jbi.2009.07.002>
- Hübner-Bloder, G., & Ammenwerth, E. (2009). Key performance indicators to benchmark hospital information systems - A delphi study. *Methods of Information in Medicine*, 48(6), 508–518. <https://doi.org/10.3414/ME09-01-0044>
- Jiang, S., Shi, H., Lin, W., & Liu, H. C. (2020). A large group linguistic Z-DEMATEL approach for identifying key performance indicators in hospital performance management. *Applied Soft Computing Journal*, 86(xxxx), 105900. <https://doi.org/10.1016/j.asoc.2019.105900>
- Jonnagaddala, J., Guo, G. N., Batongbacal, S., Marcelo, A., & Liaw, S. T. (2020). Adoption of enterprise architecture for healthcare in AeHIN member countries. *BMJ Health and Care Informatics*, 27(1), 1–8. <https://doi.org/10.1136/bmjhci-2020-100136>
- Kim, J., & Kim, J. (2021). An integrated analysis of value-based adoption model and information systems success model for proptech service platform. *Sustainability (Switzerland)*, 13(23). <https://doi.org/10.3390/su132312974>
- Kruse, C. S., Kothman, K., Anerobi, K., & Abanaka, L. (2016). Adoption factors of the electronic health record: A systematic review. *JMIR Medical Informatics*, 4(2), 1–13. <https://doi.org/10.2196/medinform.5525>
- Kruse, C. S., Kristof, C., Jones, B., Mitchell, E., & Martinez, A. (2016). Barriers to Electronic Health Record Adoption: a Systematic Literature Review. *Journal of Medical Systems*, 40(12). <https://doi.org/10.1007/s10916-016-0628-9>
- Lee, T. T., Mills, M. E., Bausell, B., & Lu, M. H. (2008). Two-stage evaluation of the impact of a nursing information system in Taiwan. *International Journal of Medical Informatics*, 77(10), 698–707. <https://doi.org/10.1016/j.ijmedinf.2008.03.004>

- Lu, S. J., Kao, H. O., Chang, B. L., Gong, S. I., Liu, S. M., Ku, S. C., & Jerng, J. S. (2020). Identification of quality gaps in healthcare services using the SERVQUAL instrument and importance-performance analysis in medical intensive care: A prospective study at a medical center in Taiwan. *BMC Health Services Research*, 20(1), 1–11. <https://doi.org/10.1186/s12913-020-05764-8>
- Mahdavian, M., Nazarian, H., Mahdavian, M., & Wattanapongsakorn, N. (2014). An investigation of the success of hospital information systems implementation: A case study. *2014 International Computer Science and Engineering Conference, ICSEC 2014*, 329–333. <https://doi.org/10.1109/ICSEC.2014.6978217>
- Mahmood, A. M., Burn, J. M., Gemoets, L. A., & Jacquez, C. (2000). Variables affecting information technology end-user satisfaction: a meta-analysis of the empirical literature. *International Journal of Human Computer Studies*, 52(4), 751–771. <https://doi.org/10.1006/ijhc.1999.0353>
- Maisa Putra, D., Oktamianiza, O., Yuniar, M., & Fadhila, W. (2021). Study Literature Review On Returning Medical Record Documents Using HOT-FIT Method. *International Journal of Engineering, Science and Information Technology*, 1(1), 61–65. <https://doi.org/10.52088/ijesty.v1i1.102>
- Malhotra, N. K. (2019). Marketing Research An Applied Orientation SEVENTH EDITION. In *Georgia Institute of Technology* (SEVENTH ED, Issue 38). <https://doi.org/10.32843/infrastruct38-38>
- Meraji, M., Tabesh, H., Jamal, N., Fazaeli, S., & Ebnhosini, Z. (2022). An Evaluation of the pharmacy information system in teaching hospitals based on the HOT-fit model. *Journal of Health Administration*, 25(2), 95–105. <https://doi.org/10.22034/25.2.95>
- Mohamadali, N. A. K. S., & Garibaldi, J. M. (2010). A novel evaluation model of user acceptance of software technology in healthcare sector. *HEALTHINF 2010 - 3rd International Conference on Health Informatics, Proceedings*, 392–397. <https://doi.org/10.5220/0002695703920397>
- Moradi, K. M., & H, S. (2016). an Analysis of the Transformational Leadership Theory. *Journal of Fundamental and Applied Sciences*, 4(1), 452–461.
- Moynihhan, D. P., Pandey, S. K., & Wright, B. E. (2012). Setting the table: How transformational leadership fosters performance information use. *Journal of Public Administration Research and Theory*, 22(1), 143–164. <https://doi.org/10.1093/jopart/mur024>
- Muhammad, M., & Arief, A. (2020). Evaluasi Faktor-Faktor Sukses Sistem Informasi Rumah Sakit Pada Rumah Sakit Xyz Menggunakan Model Delone & Mclean. *IJIS - Indonesian Journal On Information System*, 5(2), 168. <https://doi.org/10.36549/ijis.v5i2.117>
- Murphy, D. R., Satterly, T., Rogith, D., Sittig, D. F., & Singh, H. (2019). Barriers and facilitators impacting reliability of the electronic health record-facilitated total testing process. *International Journal of Medical Informatics*, 127(February), 102–108. <https://doi.org/10.1016/j.ijmedinf.2019.04.004>
- Neighbours, W., & Pollitt, C. (2003). *Different Ways – Building Explanations of*

- Hospital Performance Indicator Systems in England and the Netherlands*. 149–158.
- Parulian, R., Ali, H., & Sawitri, N. N. (2023). Executive Support System For Business and Employee Performance: Analysis Of The Ease of Use Of Information System, User Satisfaction and Transformational Leadership. *Dinasti International Journal of Management Science*, 4(6), 1031–1041. <https://doi.org/10.31933/dijms.v4i6.1845>
- Purnawan, D. A., & Surendro, K. (2016). Building enterprise architecture for hospital information system. *2016 4th International Conference on Information and Communication Technology, ICoICT 2016*, 4(c), 1–6. <https://doi.org/10.1109/ICoICT.2016.7571907>
- Putri, R. M., & Aisyah, M. (2024). *Implementing the HOT-Fit method in Hospital Management Information Systems Evaluation*. 2, 25–36.
- Rezvani, A., Dong, L., & Khosravi, P. (2017). Promoting the continuing usage of strategic information systems: The role of supervisory leadership in the successful implementation of enterprise systems. *International Journal of Information Management*, 37(5), 417–430. <https://doi.org/10.1016/j.ijinfomgt.2017.04.008>
- Rezvani, A., Khosravi, P., & Dong, L. (2017). Motivating users toward continued usage of information systems: Self-determination theory perspective. *Computers in Human Behavior*, 76, 263–275. <https://doi.org/10.1016/j.chb.2017.07.032>
- Ross, J. W. (2011). Enterprise Architecture: Driving Business Benefits from IT. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.920666>
- Rublee, D. A. (1989). The Quality of Care: How Can It Be Assessed? *JAMA: The Journal of the American Medical Association*, 261(8), 1151. <https://doi.org/10.1001/jama.1989.03420080065026>
- Sadeghi, A., Hall, J., Johnson, S., Wysocki, A., Kepner, K., Mangattu, M., Givens, R. J., Of, T. C., & Burnes, B. (2002). *Transformational Leadership : The Impact on Organizational and Personal Outcomes*. 1(July), 186–197.
- Schaper, L. K., & Pervan, G. P. (2007). ICT and OTs: A model of information and communication technology acceptance and utilisation by occupational therapists. *International Journal of Medical Informatics*, 76(SUPPL. 1), S212–S221. <https://doi.org/10.1016/j.ijmedinf.2006.05.028>
- Schermelleh-Engel, K., Moosbrugger, H., & Müller, H. (2003). Evaluating the fit of structural equation models: Tests of significance and descriptive goodness-of-fit measures. *MPR-Online*, 8(2), 23–74.
- Sekaran, U., & Bougie, R. (2016). Research methods for business : a skill-building approach. In *Research Methods for Business* (Edition, S, Vol. 34, Issue 7). Printer Trento Srl. <https://doi.org/10.1108/lodj-06-2013-0079>
- Shaw, N. T. (2002). “CHEATS”: A generic information communication technology (ICT) evaluation framework. *Computers in Biology and Medicine*, 32(3), 209–220. [https://doi.org/10.1016/S0010-4825\(02\)00016-1](https://doi.org/10.1016/S0010-4825(02)00016-1)
- Si, S. L., You, X. Y., Liu, H. C., & Huang, J. (2017). Identifying key performance indicators for holistic hospital management with a modified DEMATEL

- approach. *International Journal of Environmental Research and Public Health*, 14(8). <https://doi.org/10.3390/ijerph14080934>
- Southon, G. (1999). IT, change and evaluation: An overview of the role of evaluation in health services. *International Journal of Medical Informatics*, 56(1–3), 125–133. [https://doi.org/10.1016/S1386-5056\(99\)00043-X](https://doi.org/10.1016/S1386-5056(99)00043-X)
- Suliyanto. (2006). *Metode Riset Bisnis* (Suliyanto (ed.); Edisi I). Andi Offset.
- Sun, H., Fang, Y., & Hsieh, J. J. P. A. (2014). Consuming information systems: An economic model of user satisfaction. *Decision Support Systems*, 57(1), 188–199. <https://doi.org/10.1016/j.dss.2013.09.002>
- Tsiknakis, M., & Kouroubali, A. (2009). Organizational factors affecting successful adoption of innovative eHealth services: A case study employing the FITT framework. *International Journal of Medical Informatics*, 78(1), 39–52. <https://doi.org/10.1016/j.ijmedinf.2008.07.001>
- Weiner, B. J., Alexander, J. A., Shortell, S. M., Baker, L. C., Becker, M., & Geppert, J. J. (2006). Quality improvement implementation and hospital performance on quality indicators. *Health Services Research*, 41(2), 307–334. <https://doi.org/10.1111/j.1475-6773.2005.00483.x>
- Wirajaya, M. K., & Nugraha, I. N. (2022). Evaluation of the Hospital Management Information System With The HOT- Fit Method At The Mangusada Regional Hospital. *Manajemen Kesehatan Yayasan RS Dr.Soetomo*, 8(1), 124–136.
- Yusof, M. M., Papazafeiropoulou, A., Paul, R. J., & Stergioulas, L. K. (2008). Investigating evaluation frameworks for health information systems. *International Journal of Medical Informatics*, 77(6), 377–385. <https://doi.org/10.1016/j.ijmedinf.2007.08.004>