International Journal of Health Literacy and Science 3 (2) (2025)
International Journal of Health Literacy and Science
https://ihelis.com

Analysis Of RME Implementation Success Rate In RSUD Limpung Outpatient Unit Using The Hot-Fit Method

Tiara Nurul Khafidoh [1], Oki Setiono[2]*, Widya Ratna Wulan[3]

[1,2,3]Faculty of Health Science, Universitas Dian Nuswantoro

Article Info

Article History

Submitted: September 19, 2025

Revised: November 26, 2025

Accepted: December 31, 2025

Keywords:
System; EMR; HOT-Fit

Abstract

In organizing RME, there are many benefits for users and for hospital services, but it has not been fully implemented. The Limpung Hospital Outpatient Unit has been implementing RME since 2020, but during the process there are still several obstacles in implementing RME, namely related to the features available on the system, which are considered incomplete and when there are updates or changes to new features the system often experiences downtime. The purpose of this study is to determine the extent of the success rate of RME implementation with descriptive quantitative analysis using the HOT-Fit Method. The sample was taken by total sampling which included the inclusion criteria, namely 35 officers, the population consisted of 14 physicians, 22 nurses, 10 midwives, and 6 medical record or registration officers. The results of the study for the success rate of RME implementation on each variable, namely the Human variable gets a value of 3.00 which has a good interpretation qualification, then the Organization variable gets a value of 2.83 which has a good interpretation qualification, then the Technology variable gets a value of 2.82 which has a good interpretation qualification, and finally the Net-Benefit variable gets a value of 3.07 which has an interpretation qualification. The results of this study imply that the findings highlight the importance of regular training for staff, adequate network facilities, and the development and improvements of features.

Correspondence Address:
Perum. Griya Buana Bangetayu E/24, Genuk, Semarang City, Indonesia
E-mail: okisetiono@dsn.dinus.ac.id

pISSN 2964-2035
eISSN 3025-9258

Introduction

Healthcare facilities such as hospitals, community health centers, and clinics play an important role in providing quality services to create a healthy society (Ketut Juliantari et al., 2023). One form of comprehensive individual healthcare facility is the hospital. This provision is regulated under Law Number 44 of 2009 concerning Hospitals. Hospitals provide various services, including inpatient care, outpatient care, and emergency care. Recording and reporting of all activities related to hospital operations is a mandatory obligation that must be carried out through the Health Information System (Pemerintah Republik Indonesia. Undang-Undang Republik Indonesia Nomor 44 Tahun 2009 Tentang Rumah Sakit., 2009). To ensure the data from this process can be utilized optimally, fast, precise, and accurate management is essential (Suyoko et al., 2024).

With the current development of medical record data digitization, hospitals must develop information technology so that patient services can run optimally and be used for documenting patient health data. Hospitals are required to develop information technology to support the efficiency of health services (Setijaningsih et al., 2024). One of its implementations is the adoption of Electronic Medical Records (EMR), as stipulated in the Regulation of the Minister of Health Number 24 of 2022 concerning Electronic Medical Records. EMR serve as digital documents containing important information such as patient identity, examination results, medical procedures, and other services provided to patients (Menteri Kesehatan RI, 2022). The implementation of EMR has proven to provide many benefits, such as facilitating communication between healthcare professionals, improving documentation efficiency, and accelerating decision-making. However, the implementation of EMR also faces various technical and non-technical obstacles (Sylvia Anjani et al., 2023).

Medical record services are vital hospital services aimed at providing information to facilitate patient care management and support managerial decision-making processes (planning, organizing, implementation, supervision, evaluation, and control) by clinical and administrative providers. Therefore, the implementation of information technology in the form of Electronic Medical Records (EMR) in hospitals is highly important (Suryanto & Subekti, 2020).

Several previous studies have identified obstacles in the implementation of Electronic Medical Records (EMR), such as a lack of training, low staff compliance, and technical issues including internet connectivity and server problems (Ariani, 2023). To measure and evaluate the success of information system implementation such as EMR, the HOT-Fit approach is used, which assesses the alignment between Human, Organization, Technology, and Net-Benefit aspects. This method is considered capable of providing a comprehensive overview of both the successes and challenges in implementing information systems in healthcare facilities (Handayani & Bilondatu, 2024).

Limpung Regional General Hospital (RSUD Limpung) has begun implementing Electronic Medical Records (EMR) since 2020, including in the outpatient unit. This is relevant to the development of EMR, so further review of EMR usage is needed. However, based on preliminary surveys and interviews, it was found that the implementation of EMR still encounters obstacles in the aspects of Human, Organization, and Technology. These include discrepancies between the EMR format and the manual version, limited training, as well as system disruptions during updates. This condition indicates that the implementation of EMR at RSUD Limpung has not yet run optimally. Therefore, this study was conducted to analyse the success of EMR implementation in the Outpatient Unit of RSUD Limpung using the HOT-Fit approach, as little is currently known about the success of EMR implementation based on this model in hospitals.

Methods

In this study, the method used to evaluate the implementation of the system is Human. Organization, Technology, and Net-Benefit (HOT-Fit) method. The HOT-Fit model was introduced in 2006 at the 39th international conference by Yusof et al in Hawaii Science System international conference naming it is the Human Organization Technology (HOT) Fit Model (Rasid et al., 2022). The HOT-Fit method integrates the Information System Success Model developed by DeLone and McLean with Morton's IT Organization Fit Model. Its application serves to assess the effectiveness of information system applications within an organizational context (Yusof et al., 2006). The HOT-Fit method is regarded as the most comprehensive and well-suited to address the identified issues. It includes organizational variables, such as organizational structure and environment, which were absent in earlier models (Krisbiantoro et al., 2015).

This study is a quantitative research with a descriptive approach. This approach is used to provide a systematic and accurate description of the investigated phenomenon, employing questionnaires as the research instrument and statistical data processing (S. Sugiyono & Lestari, 2021). The population in this study consisted of all health workers at the Outpatient Unit of Limpung Regional General Hospital (RSUD), totaling 52 people, including 14 doctors, 22 nurses, 10 midwives, and 6 medical record or registration officers. Of this population, 35 respondents met the inclusion criteria, while the rest were excluded because they did not meet the inclusion criteria. The study employed a total sampling technique with inclusion criteria covering outpatient unit staff who use Electronic Medical Records (EMR) and are willing to complete the questionnaire.

Primary data were collected through questionnaires distributed directly. The questionnaire instrument was developed based on HOT-Fit variable indicators derived from relevant journals and employed a four-point Likert scale (Ayuardini & Ridwan, 2019). Scoring was determined based on positive to negative weights (ranging from Strongly Agree to Strongly Disagree). The descriptive analysis used mean scores and categorization based on a Likert scale conversion table.

Table 1. Scale and Scoring Weight

Scale	Weight	
	Positive	Negative
Strongly Agree (SA)	4	1
Agree (A)	3	2
Disagree (D)	2	3
Strongly Disagree (SD)	1	4

Source: Sugiyono, 2015 (P. Sugiyono, 2015)

The interpretation of the average value per variable was carried out to determine the level of success in implementing the EMR. The qualification of the results was determined based on the range of Likert scale values, namely:

Table 2. Qualification of Interpretation

Range	Qualification of Interpretation
3.26 – 4.00	Very Good
2.51 - 3.25	Good
1.76 - 2.50	Poor
1.00 - 1.75	Very Poor

Source: Sugiyono, 2015 (P. Sugiyono, 2015)

The final results are presented in the form of tables and narrative descriptions to illustrate the success of EMR implementation based on the four HOT-Fit variables. The procedure for obtaining these values is as follows:

$$\text{Interpretation of EMR Results by HOT-Fit Variables} = \frac{\Sigma \text{ Average of Question Indicators}}{\text{Number of Question Indicators}} \quad (1)$$

Results

This study aims to analyze the level of success in implementing Electronic Medical Records (EMR) in the Outpatient Unit of Limpung Regional General Hospital (RSUD Limpung) using the HOT-Fit method. This research is quantitative in nature, with data collected through questionnaires distributed to 35 respondents who were EMR users and met the inclusion criteria. The questionnaire was developed based on the four main variables of the HOT-Fit method and employed a Likert scale ranging from 1 to 4. The collected data were then statistically analyzed using Microsoft Excel to provide an overview of the success of EMR implementation from the users' perspective.

Table 3. Characteristics of Respondents

Criteria		Frequency	Percentage
Age	< 20 years	0	0%
	20 - 30 years	9	26%
	31 – 40 years	12	34%
	41 – 50 years	13	37%
	> 50 years	1	3%
Total		**35**	**100%**
Years of Service	< 1 years	0	0%
	1 - < 5 years	9	26%
	5 - < 10 years	16	46%
	10 - < 15 years	4	11%
	> 15 years	6	17%
Total		**35**	**100**
Profession	Doctor	8	23%
	Nurse	13	37%
	Midwife	8	23%
	Registration Staff	6	17%
Total		**35**	**100%**

Based on Table 3, this study involved a sample of 35 respondents from the staff in the Outpatient Unit of Limpung Regional General Hospital (RSUD Limpung). The majority of respondents were aged 41–50 years (37%), followed by those aged 31–40 years (34%). Most respondents had worked for 5–10 years (46%), and more than half had work experience of 5 years or more. In terms of profession, nurses constituted the largest group (37%), followed by doctors and midwives (23% each), and registration staff (17%). In terms of profession, the respondents represented four categories: doctors, nurses, midwives, and registration staff. The majority of them were aged 41–50 years and had a length of service of 5 to less than 10 years.

The HOT-Fit assessment showed that the highest-performing component was **organizational support**, particularly hospital management support for system utilization (3.54, very good). **Net-benefit** also demonstrated strong results with improvements in service efficiency, user performance, and communication (average 3.07, good). Meanwhile, **system users** reported a high level of ease of use and training participation (3.43, very good), although expectations were not fully met (2.86, good). **System quality**, **information quality**, and **service quality** were generally rated as **good**, but some limitations were identified, especially regarding incomplete system features and system errors. The **lowest scores** were found in **organizational structure**, particularly insufficient network infrastructure (2.20, poor) and inadequate follow-up when system disruptions occurred (2.40, poor). Overall, EMR implementation in the outpatient unit performed well across most HOT-Fit variables, but infrastructure and system reliability remain major areas for improvement.

After obtaining the scores for each HOT-Fit variable in the use of EMR in the outpatient unit, the overall system interpretation can be determined based on the HOT-Fit method. Based on the aggregated results across all variables, the overall implementation of EMR in the Outpatient Unit of Limpung Regional General Hospital (RSUD Limpung) achieved a score of 2.91, which is interpreted as *Good* according to the HOT-Fit method.

Discussion

This study aims to analyse the level of success in implementing Electronic Medical Records (EMR) in the Outpatient Unit of Limpung Regional General Hospital (RSUD Limpung) using the HOT-Fit approach, which comprises four variables: Human, Organization, Technology, and Net-Benefit. Data were obtained from 35 respondents, including medical and non-medical staff who use EMR, with the majority aged 41–50 years and having a length of service of 5–10 years.

The findings of this study demonstrate that the implementation of EMR in the Outpatient Unit of RSUD Limpung falls into the "Good" category across all four HOT-Fit variables. The Human variable obtained a score of 3.00, indicating good user readiness and capability. Users generally reported that the system was easy to use, supported by adequate training and strong managerial support. This aligns with Ariani (2023), who emphasized that user competence and management involvement are key determinants of successful EMR adoption. Similarly, Handayani and Bilondatu (2024) also found that organizational culture and managerial encouragement contribute significantly to the optimization of EMR use, which is consistent with the high score in the Human and Organization variables in the present study.

Although the Organization variable in this study achieved a "Good" category (2.83), several barriers were still detected, including unstable internet connectivity and slow follow-up procedures during system disruptions. This partially supports Ariani (2023), who reported that technical constraints and insufficient support systems often hamper EMR implementation. However, unlike previous studies that highlighted a lack of training as a dominant barrier, this research shows that training in RSUD Limpung is considered adequate, suggesting that organizational readiness is relatively stronger in this setting.

The Technology variable also obtained a "Good" score (2.80), yet it had the lowest value among the four variables. Users reported that although the system interface and usability were generally acceptable, several essential features particularly e-prescriptions were not fully optimized, and system errors still frequently occurred. These issues echo the findings of Handayani and Bilondatu (2024), who observed that the technological component is often the weakest dimension in EMR implementation due to incomplete features and limited infrastructure. The current study further reinforces this conclusion by showing that insufficient infrastructure and recurring errors significantly reduce user satisfaction.

The highest score was obtained in the Net-Benefit variable (3.07), indicating that EMR has already generated meaningful positive outcomes for users, including improved service efficiency, enhanced staff coordination, and increased patient satisfaction. This is consistent with the results of Ariani (2023), who found that even when technological shortcomings are present, EMR can still provide substantial benefits if users and organizational structures are supportive.

In summary, the results of this study both reinforce and complement previous research. Consistent with Ariani (2023) and Handayani and Bilondatu (2024), human and organizational factors play a critical role in EMR success, while technological gaps remain the main challenge. These findings imply that further improvements in infrastructure reliability, system features, and follow-up responsiveness are essential for maximizing EMR benefits in the outpatient unit of RSUD Limpung.

Overall, the four HOT-Fit variables show that EMR implementation in the Outpatient Unit of RSUD Limpung is in the "Good" category. Although generally effective, improvements remain necessary, particularly in the technology component. The Technology score (2.80) indicates that the system supports operational use; however, several essential features such as e-prescriptions are not yet fully optimized, and technical issues, including system errors and infrastructure limitations, still occur. Information accuracy and completeness are adequate, yet responsiveness and readability require enhancement, and vendor technical support has not reached optimal performance. These findings imply that hospital management should allocate greater resources for system refinement, infrastructure strengthening, and continuous user capacity-building, while IT developers are advised to prioritize feature completion, increase platform stability, and improve responsiveness of technical support to ensure alignment with clinical workflow and user needs.

Conclusion

Based on the HOT-Fit analysis, the overall success of the Electronic Medical Record (EMR) implementation in the Outpatient Unit of RSUD Limpung is classified as "Good," with an average score of 2.92. The HOT-Fit method provides a comprehensive overview of each variable. For the human variable, the system is considered easy to use and supported by adequate training, with an average score of 3.00. The organization variable received a score of 2.83, indicating reasonably good management support, although technical issues and limited IT staff remain a challenge. The technology variable scored 2.80, reflecting a fairly good system quality, yet features such as e-prescriptions and system stability still need improvement. Meanwhile, the net-benefit variable recorded the highest score of 3.07, indicating that the system's benefits are already being felt in improving work efficiency and patient satisfaction.

The recommendations of this study to improve the effectiveness of EMR include providing regular training and evaluations for users to maintain their competence (human variable). From the organization perspective, it is necessary to enhance network infrastructure, increase IT staff, and strengthen internal coordination. In terms of technology, developing system features especially e-prescriptions along with routine maintenance and prompt handling of technical issues should be prioritized. Finally, periodic evaluation of the system's benefits is essential to ensure that positive impacts on staff and patients continue to grow, while also serving as a basis for future service development.

Author Contributions

Tiara Nurul Khafidoh contributed to data collection, questionnaire distribution, and initial data entry. Oki Setiono was responsible for conceptualization, methodology design, supervision, and overall project administration. Widya Ratna Wulan contributed to data analysis, validation, and interpretation of results. All authors contributed to the writing of the manuscript: Tiara Nurul Khafidoh prepared the original draft, Oki Setiono performed critical review and editing, and Widya Ratna Wulan assisted in refining the final version. All authors have read and approved the published version of the manuscript.

Funding

No funding was received during the research process or writing of this article.

Acknowledgments

We would like to express our deepest gratitude to the research team from the Faculty of Health Science, Universitas Dian Nuswantoro, for their moral and material support during the research and writing process of this article. We also extend our sincere thanks to all parties at RSUD Limpung, Batang Regency, for granting permission and providing support, which enabled this research to be successfully carried out.

Conflicts of Interest:

The authors declare no conflict of interest.

Appendix

References

Ariani, S. (2023). Analisis Keberhasilan Implementasi Rekam Medis Elektronik Dalam Meningkatkan Efisiensi Dan Mutu Pelayanan. *Jurnal Kesehatan Dan Kedokteran*, *2*(2), 7–14. https://doi.org/10.56127/jukeke.v2i2.720

Ayuardini, M., & Ridwan, A. (2019). Implementasi metode Hot Fit pada evaluasi tingkat kesuksesan sistem pengisian KRS terkomputerisasi. *Faktor Exacta*, *12*(2), 122–131.

Handayani, L., & Bilondatu, M. (2024). Sistem Informasi Manajemen Rumah Sakit Di Instalasi Rawat Jalan Berdasarkan Metode Human, Organization, Dan Technology Di Rsud Dr. MM Dunda Limboto. *Jurnal Manajemen Informasi Kesehatan Indonesia*, *12*(2).

Ketut Juliantari, N., Yulia Adiningsih, L., Chrisdayanti Suada Putri, P., Wirabuana Putra, G., Erma Pradnyani, P., Piranha No, J., & Sesetan Denpasar, P. (2023). Gambaran Proses Implementasi Rekam Medis Elektronik di Unit Rawat Jalan dengan Metode HOT-Fit di Rumah Sakit Umum Ari Canti. *The Journal of Management Information and Health Technology*, *1*, 29–34.

Krisbiantoro, D., Suyanto, M., & Luthfi, E. T. (2015). Evaluasi keberhasilan implementasi sistem informasi dengan pendekatan HOT Fit model (Studi kasus: Perpustakaan STMIK AMIKOM Purwokerto). *Konferensi Nasional Sistem Dan Informatika 2015*.

Menteri Kesehatan RI. (2022). Peraturan Menteri Kesehatan Republik Indonesia Nomor 24 Tahun 2022 Tentang Rekam. *Braz Dent J.*, *33*(1), 1–12.

Pemerintah Republik Indonesia. Undang-Undang Republik Indonesia Nomor 44 Tahun 2009 Tentang Rumah Sakit., 49 (2009).

Rasid, K., Lutfi, S., & Abdullah, S. Do. (2022). Penerapan Metode Human Organization Technology And Benefit (Hot Fit) Untuk Evaluasi Tingkat Keberhasilan Layanan Sistem (Studi Kasus: Sistem Informasi Akademik (SIMAK) Versi 2 Universitas Khairun Ternate). *Jurnal Jaringan Dan Teknologi Informasi*, *1*(1).

Setijaningsih, R. A., Setiono, O., Wibowo, S. S., & Setiawan, A. (2024). Sosialisasi Akreditasi Dan Kesiapan Rekam Medis Elektronik Bagi Perekam Medis Di RST Bhakti Wira Tamtama Semarang. *Jurnal Pengabdian Kepada Masyarakat*, *1*(1), 22–27.

Sugiyono, P. (2015). Metode penelitian kombinasi (mixed methods). *Bandung: Alfabeta*, *28*(1), 12.

Sugiyono, S., & Lestari, P. (2021). *Metode penelitian komunikasi (Kuantitatif, kualitatif, dan cara mudah menulis artikel pada jurnal internasional)*. Alvabeta Bandung, CV.

Suryanto, H., & Subekti, H. (2020). Penerapan Teknologi Informasi Dalam Penyelenggaraan Rekam Medis di RSUD Ngudi Waluyo Wlingi Blitar. *Jurnal Repositor*, *2*(7).

Suyoko, S., Agiwahyuanto, F., Ernawati, D., Prasetya, J., & Abiyasa, M. T. (2024). Pelaksanaan Penganalisisan Data Rekam Medis Elektronik (Studi Perancangan Sistem Informasi Analisis Kuantitatif). *J-REMI: Jurnal Rekam Medik Dan Informasi Kesehatan*, *5*(3), 219–233.

Sylvia Anjani, S. K. M., Maulana Tomy Abiyasa, A., & PK, S. (2023). *Disrupsi Digital dan Masa Depan Rekam Medis (Kajian Peraturan Menteri Kesehatan Nomor 24 Tahun 2022 Tentang Rekam Medis Elektronik)*. Selat Media.

Yusof, M. M., Paul, R. J., & Stergioulas, L. K. (2006). Towards a framework for health information systems evaluation. *Proceedings of the 39th Annual Hawaii International Conference on System Sciences (HICSS'06)*, *5*, 95a-95a.