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# Analysis of Factors Affecting the Successful Implementation of Accounting Information Systems with Availability as a Moderating Variable in Online Queues with Entity Relationship Diagram Concepts in North Sumatra Provincial Type A Hospitals

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## ABSTRACT

This study aims to measure the effect of data quality, ethics of information, velocity, and ease of understanding moderated by availability on the successful implementation of an online queue accounting information system implementation with entity relationship diagram concepts in North Sumatra Provincial Type A Hospitals. This research was conducted based on the distribution of questionnaires and sample collection using the accidental sampling method. The population in this study were patients at North Sumatra Provincial Type A Hospital who were patients who performed outpatient services, paid bills, and took drugs via online queues either through the website or applications available from January to March 2024. The sample was 436 patients, as determined based on the Cohen table. The type of data used is primary data. The data analysis techniques used are descriptive statistical analysis and PLS-SEM analysis with Microsoft Excel and SmartPLS software.

The results of this study indicate that data quality, velocity, and ease of understanding have a positive and significant impact on the successful implementation of entity relationship diagram-based online queuing AIS. On the other hand, the ethics of information does not significantly affect the successful implementation of entity relationship diagram-based online queuing AIS. In addition, availability can only moderate data quality and ease of understanding, while ethics of information and velocity cannot be moderated by availability on the successful implementation of entity relationship diagram-based online queuing AIS.

***Keywords:*** data quality, ethics of information, velocity, ease of understanding, availability, successful implementation of accounting information systems, online queue, entity relationship diagram

## INTRODUCTION

Accounting information systems (AIS) have become crucial to all organizations. The need for AIS is increasing due to the volume of different businesses and the emergence of new technologies that directly affect accounting information systems (Alsufy, 2019). Information technology is becoming increasingly accepted and needs to be implemented in organizations because of its various benefits. The problem often arises when technology does not provide adequate benefits because users need to make the best use of the technology provided to assist them in carrying out their duties. Information

systems can affect individual performance directly and indirectly. Information systems can be a powerful tool to improve individual performance, but can also be a source of problems if not used wisely. According to Atmadjati (2018), service excellence can be obtained from using systems, especially AIS, in the current evolution of service. Service excellence means taking care of customers by providing the best service to meet their needs and satisfaction. Increased competition and consumer demand for better services drive innovation and change in trade and services (Lopes et al., 2022). Consumers will prefer the best service that meets their needs, namely fast and accurate service. Consumers prioritize ease and convenience; sometimes, they are even willing to pay more. Therefore, to survive the increasingly fierce competition and consumer demands, service providers strive to improve their services and make them as good as possible to maintain and even expand the market (Madyatmadja, Karsen, Yuri, Sijabat, D, Rhaka, Santika & Pristinella, 2023). Today's society has an increasingly critical attitude towards service evaluation, and comparing services from one organization to another is not uncommon. Customer disappointment can affect the reputation and even profits of the organization concerned. Even from the institution's side, poor service will result in wasted costs.

A queuing system manages the arrival of visitors at service facilities, often seen in public places like banks, hospitals, and transportation services, where demand exceeds service capacity, leading to long and disorganized waits. Predicting patient inflow in healthcare is particularly challenging, impacting waiting times, staff productivity, and patient satisfaction. As healthcare facilities grow, optimizing service systems is crucial for competitiveness. According to Satria, Zulfan, Munawir, & Mulyati (2019), Entity Relationship Diagrams (ERDs) are commonly used in queuing systems to illustrate relationships between entities, aiding in efficient system design. Online queuing systems with ERD can enhance transparency, accountability, efficiency, and effectiveness and help prevent service abuse and fraud.

According to the Minister of Health Decree of the Republic of Indonesia Number HK.02.03/Menkes/133/2023, two Type-A hospitals in North Sumatra collaborate with BPJS Health, namely H. Adam Malik Hospital and Dr Pirngadi Hospital. Type A hospitals act as the main referral center for other health facilities. Type A hospital criteria involve an easily accessible location, adequate facilities and infrastructure, quality human resources, basic medical services, emergency department, basic specialists, specialist medical support, other specialists, oral teeth, subspecialists, nursing, midwifery, clinical support, non-clinical support, and have superior capabilities in certain fields. Various kinds of facilities offered by H. Adam Malik Hospital and Dr. Pirngadi Hospital have caused many BPJS patients, especially from the North Sumatra region, to visit. Based on data from BPJS Kesehatan Medan Branch via www.bpjs-kesehatan.go.id, the number of BPJS patients at H. Adam Malik Hospital and Dr. Pirngadi Hospital in the 2017-2023 timeframe is as follows.

**Table 1. Number of Patients of H. Adam Malik General Hospital and Dr. Pirngadi General Hospital for the Period 2017-2023**

| Year | H. Adam Malik General Hospital | Dr. Pirngadi General Hospital |
|---|---|---|
| 2017 | 150.000 | 100.000 |
| 2018 | 175.000 | 125.000 |
| 2019 | 225.000 | 150.000 |
| 2020 | 180.000 | 135.000 |
| 2021 | 220.000 | 155.000 |
| 2022 | 250.000 | 170.000 |
| 2023 | 260.000 | 180.000 |

Before the implementation of the online queue, namely from 2017 to 2018, the average number of patients who could be served per year never reached 200,000 patients for H. Adam Malik Hospital and 150,000 for Dr. Pirngadi Hospital. This shows that the services provided still need to

be more efficient to minimize the number of patients served. After implementation, a rapid increase in the number of patients the relevant hospitals can serve can be seen. Although, in 2020, there was a decline due to the COVID-19 pandemic, which caused a decrease in community mobility. However, after the community's adjustment to the COVID-19 pandemic, mobility also returned to normal, and patients again experienced a surge even, exceeding 200,000 patients for H. Adam Malik Hospital and 150,000 for Dr. Pirngadi Hospital. This increase proves that implementing an ERD-based online queuing system increases the efficiency and effectiveness of performance and can provide more points in hospital financial reports. However, some things are not aligned, namely that there are still users who do not understand the use of this online queue coupled with the availability of medical personnel who are sometimes still lacking when compared to the number of patients who register as well as systems that often experience maintenance as reported by orbitdigitaldaily.com (December 2021). In addition, there are sometimes long queues of patients for outpatient care, drug collection, and bill payment. This study combines the DeLone and Mclean Information System Success Model and Altruistic Theory because individual satisfaction arising after successful AIS implementation generally shows stronger altruistic behaviour. High life satisfaction, often associated with happiness and emotional well-being, can encourage individuals to help others and contribute to social well-being. Research on AIS implementation with the DeLone and McLean (D&M IS Success) model combined with altruistic theory is still very limited. According to Zhang, Li & Pan (2019), this combination is needed to provide a more comprehensive understanding of how AIS implementation can affect users and organizations. Ultimately, a successful AIS implementation will impact user satisfaction, usability, and effectiveness of the AIS itself (Al-Hattami, 2021). Therefore, this research is needed to support the BPJS program and Type A Hospitals in North Sumatra Province in overcoming delays in AIS implementation in online queues. Patients are the right target for optimizing the success of online queue implementation because they have needs and interests directly related to the system (Haleem, Javaid, Singh, & Suman, 2021). It is hoped that the study's results can inform and stimulate thought among researchers involved in the successful implementation of AIS in online queuing systems in Type A hospitals in North Sumatra, namely H. Adam Malik General Hospital and Dr. Pirngadi Hospital or other places that utilize online queuing AIS to improve existing AIS.

## LITERATURE REVIEW

### DeLone and McLean Information System Succes Model

DeLone & McLean (2016) state that information system success examines effectiveness, user satisfaction, and performance. Measuring the success of information systems can be seen from an organizational or individual perspective. In this research, the measurement focuses on individuals as users. Investigating the success of information system implementation will certainly contribute to knowledge sharing, decision-making, or task completion. Initially, this model consisted of six dimensions: system quality, information quality, use, user satisfaction, individual impact, and organizational impact. However, DeLone and McLean conducted further research in 2003 and added a new service quality variable.

### Altruistic Theory

The altruistic theory was initiated by Auguste Comte in the 19th century (Carlson & Zaki, 2018), explaining that humans have an instinct to help others, and altruism is one way to achieve happiness and satisfaction. Altruism is selflessly helping others, driven by a genuine concern for their well-being, without expecting anything in return (Oshionwu & Nwose, 2019). It involves

goal-directed actions aimed at improving the well-being of others and can take various forms, such as genetic altruism, group-selected altruism, and reciprocal altruism, that can be beneficial in the workplace, leading to increased motivation and a positive organizational culture. Altruism is often measured using behavioural indicators, such as altruistic personality scales, behavioural paradigms, and the Big Five model of personality. In addition, altruism can also be assessed through ethical aspects such as empathy, voluntary behaviour, and the desire to help. Fostering altruism can result in individual and social benefits, making it an important concept to understand and promote (Liao, 2023).

## Framework

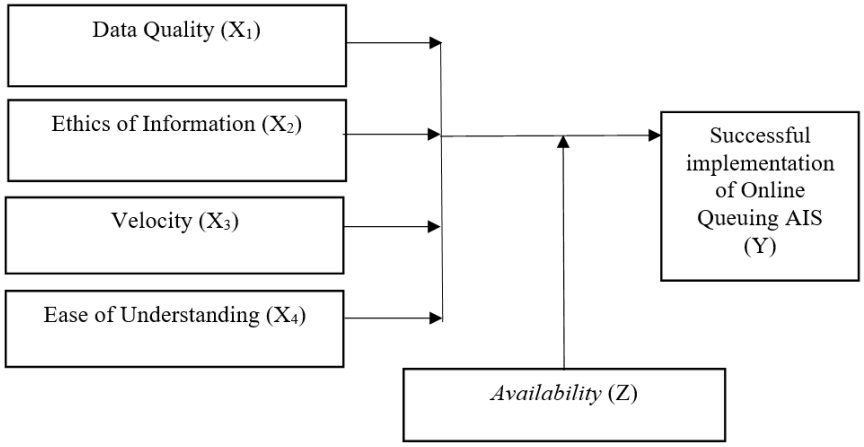


**Figure 1. Framework**

The hypothesis in this study is as follows.

H1: DQ positively affects the successful implementation of AIS in online queues with ERD modelling.

H2: EoI positively affects the success of AIS implementation in online queues with ERD modelling.

H3: Velocity positively affects the success of AIS implementation on online queues with ERD modelling.

H4: EoU positively affects the success of AIS implementation on online queues with ERD modelling.

H5: Availability can moderate DQ on the success of AIS implementation in online queues with ERD modelling.

H6: Availability can moderate EoI on the success of AIS implementation on online queues with ERD modelling.

H7: Availability can moderate velocity on the success of AIS implementation in online queues with ERD modelling.

H8: Availability can moderate EoU on the success of AIS implementation on online queues with ERD modelling.

## MATERIALS & METHODS

This research is empirical (quantitative) using quantitative data. This cross-sectional design research focuses on developing and modifying theories to understand problems more deeply, as well as testing theories and relationships between variables using numerical data and statistical procedures (Sekaran & Bougie, 2016). Data was collected using the survey method by distributing online questionnaires via Google Forms with a 5-point Likert scale. The population of this study were all patients who were patients who performed outpatient services, paid bills, and took medicine at H. Adam Malik Hospital and Dr. Pirngadi Hospital actively and routinely in 2024 until March accumulated 119,833 people reported from www.rsham.co.id and

www.rsudpirngadi.pemkomedan.go.id.

Table Cohen et al. (2007) is used to determine the number of research samples, which is a minimum of 383 people who are patients who are active and routine users of the website or online queuing application at H. Adam Malik Hospital and Dr. Pirngadi Hospital, which are limited to users in January to March 2024. Accidental sampling was used as a technique to obtain a research sample.

A descriptive statistical analysis was performed using Microsoft Excel to describe the characteristics of each data variable obtained from the questionnaire. To test the validity of this study's measurement and structural models, the Structural Equation Modelling (SEM) method was used with the SmartPLS tool, namely PLS-SEM, with two models: the outer model (measurement) and the inner model (structural). In addition, there are types of formative constructs, namely indicators, that form variables (Ghozali & Latan, 2015).

## RESULT

Questionnaires were distributed to patients who used the website or online queuing application at H. Adam Malik General Hospital and Dr. Pirngadi General Hospital for 18 days. The number of questionnaires filled in was 441 respondents, which is more than the minimum targeted sample (383 samples). Five respondents (1.14%) did not fill out the questionnaire correctly, but 436 respondents (98.86%) filled out the questionnaire properly and were used in this study.

### The Outer Model PLS SEM

From Table 2, all indicators used in the DQ, EoI, velocity, EoU, and AIS Implementation Success variables have a loading factor value greater than 0.7. This indicates that all indicators in these variables have sufficient validity, so they fulfil convergent validity

**Table 2. Outer Loadings Value Test Result**

| | Data Quality (X1) | Ethics of Information (X2) | Velocity (X3) | Ease of Understanding (X4) | AIS Implementation Success (Y) |
|---|---|---|---|---|---|
| DQ1 | 0.799 | | | | |
| DQ2 | 0.758 | | | | |
| DQ3 | 0.804 | | | | |
| DQ4 | 0.793 | | | | |
| EI1 | | 0.776 | | | |
| EI2 | | 0.809 | | | |
| EI3 | | 0.727 | | | |
| EI4 | | 0.704 | | | |
| EU1 | | | | 0.789 | |
| EU2 | | | | 0.814 | |
| EU3 | | | | 0.849 | |
| EU4 | | | | 0.735 | |
| V1 | | | 0.724 | | |
| V2 | | | 0.798 | | |
| V3 | | | 0.752 | | |
| V4 | | | 0.801 | | |
| V5 | | | 0.746 | | |
| Y1 | | | | | 0.821 |
| Y2 | | | | | 0.809 |
| Y3 | | | | | 0.712 |
| Y4 | | | | | 0.775 |
| Y5 | | | | | 0.773 |
| Y6 | | | | | 0.804 |

Table 3 displays the AVE value for each variable DQ, EoI, velocity, EoU, and AIS Implementation Success greater than 0.5. Thus, each variable in this research model has good discriminant validity.

**Table 3. Average Variance Extracted Test Result**

| | **Average Variance Extracted (AVE)** |
|---|---|
| Data Quality (X1) | 0.622 |
| Ethics of Information (X2) | 0.571 |
| Velocity (X3) | 0.585 |
| Ease of Understanding (X4) | 0.637 |
| AIS Implementation Success (Y) | 0.613 |

Apart from using the AVE value, discriminant validity can also be seen based on the square root AVE value in the Fornell-Larcker test, which must be greater than all correlations between other variables (Hair et al., 2022). the square root AVE value of all variables in Table 4 exceeds all correlations between other variables. This proves that discriminant validity has been well-validated and follows the criteria (Ghozali & Latan, 2015; Sekaran & Bougie, 2016).

**Table 4. Fornell-Larcker Test Result**

| | **(X1)** | **(X4)** | **(X2)** | **(Y)** | **(X3)** |
|---|---|---|---|---|---|
| Data Quality (X1) | 0.789 | | | | |
| Ease of Understanding (X4) | 0.535 | 0.798 | | | |
| Ethics of Information (X2) | 0.558 | 0.535 | 0.755 | | |
| AIS Implementation Success (Y) | 0.497 | 0.546 | 0.440 | 0.783 | |
| Velocity (X3) | 0.482 | 0.508 | 0.450 | 0.454 | 0.765 |

All research variables, namely DQ, EoI, velocity, EoU and AIS Implementation Success, are greater than 0.7 (> 0.7). The results shown in Table 5 show that each variable meets the composite reliability, so it can be concluded that all variables have a good level of reliability.

**Table 5. Composite Reliability Test Result**

| | **Composite Reliability** |
|---|---|
| Data Quality (X1) | 0.868 |
| Ethics of Information (X2) | 0.841 |
| Velocity (X3) | 0.876 |
| Ease of Understanding (X4) | 0.875 |
| AIS Implementation Success (Y) | 0.905 |

Besides using composite reliability to see whether a variable is reliable, it can also be seen from Cronbach's alpha value. The Cronbach's alpha value in Table 6 of each research variable is greater than 0.60. Thus, these results show that each research variable has a high level of reliability.

**Table 6. Cronbach's Alpha Test Result**

| | **Cronbach's Alpha** |
|---|---|
| Data Quality (X1) | 0.798 |
| Ethics of Information (X2) | 0.749 |
| Velocity (X3) | 0.824 |
| Ease of Understanding (X4) | 0.809 |
| AIS Implementation Success (Y) | 0.874 |

To determine whether indicators experience multicollinearity, the VIF value must be known. If the VIF value < 5, there is no multicollinearity. Meanwhile, there is a multicollinearity issue if the VIF value> 5. Based on Table 7, all the independent variables used in this study have a VIF value smaller than 5. So, in this study, there is no multicollinearity issue.

**Table 7. VIF Value Test Result**

| | VIF |
|---|---|
| Data Quality (X1) | 1.722 |
| Ethics of Information (X2) | 1.713 |
| Velocity (X3) | 1.677 |
| Ease of Understanding (X4) | 1.504 |

## The Inner Model PLS SEM

After testing the outer model, the next test is the inner model (structural model). Inner model testing is done by looking at the coefficient of determination (R-square) and the path coefficient. In Table 8, the R-squared value obtained in this research model is 0.381. The result of this value explains that the percentage of AIS implementation success can be explained by DQ, EoI, velocity, and EoU, which is 38.1%. The rest is explained by other variables not used in this study. These results include the R-square value obtained in the moderate model category.

**Table 8. R-Square Test Result**

| | R Square | R Square Adjusted |
|---|---|---|
| AIS Implementation Success (Y) | 0.381 | 0.376 |

The R-Square value in Table 9 after the moderation variable is used obtained in this research model is 0.521. The acquisition of this value explains that the percentage of the success of AIS implementation can be explained by DQ, EoI, velocity, and EoU, which is 52.1%. The rest is explained by other variables not used in this study. These results include the R-square value obtained in the moderate model category.

**Table 9. R-Square After Adding Moderating Variables Test Result**

| ***R Square*** | | |
|---|---|---|
| | **R Square** | **R Square Adjusted** |
| AIS Implementation Success (Y) | 0.521 | 0.511 |

The t-test is conducted to test the individual effect of one explanatory variable on the dependent variable (Ghozali & Latan, 2015). Of the four hypotheses proposed in this study regarding partial hypotheses, only one was rejected, hypothesis 2. Meanwhile, the other three hypotheses, including hypothesis 1, hypothesis 3, and hypothesis 4, can be accepted. The results are shown in Table 10 below.

**Table 10. Path Coefficient Test Result**

| | Path Coefficient | t Statistic | P Values |
|---|---|---|---|
| Data Quality (X1) -> AIS Implementation Success (Y) | 0.206 | 3.437 | 0.001 |
| Ethics of Information (X2) -> AIS Implementation Success (Y) | 0.090 | 1.597 | 0.111 |
| Velocity (X3) -> AIS Implementation Success (Y) | 0.158 | 2.906 | 0.004 |
| Ease of Understanding (X4) -> AIS Implementation Success (Y) | 0.308 | 5.330 | 0.000 |

This study carried out hypothesis testing on moderating variables using the interaction test to see whether availability can moderate the influence of DQ, EoI, velocity, and EoU on the success of AIS implementation. Four hypotheses regarding moderating variables are presented. Based on Table 11, two moderating hypotheses, hypothesis 5 and hypothesis 8, can be accepted. The other two hypotheses, hypothesis 6 and hypothesis 7, are rejected.

**Table 11. Moderating Test Result**

| | Path Coefficient | t Statistic | P Values |
|---|---|---|---|
| X1*Z -> AIS Implementation Success (Y) | -0.132 | 2.349 | 0.019 |
| X2*Z -> AIS Implementation Success (Y) | -0.029 | 0.618 | 0.537 |
| X3*Z -> AIS Implementation Success (Y) | 0.012 | 0.222 | 0.824 |
| X4*Z -> AIS Implementation Success (Y) | -0.193 | 4.265 | 0.000 |

## DISCUSSION

The PLS-SEM analysis revealed that measuring online queuing AIS implementation success is robust and reliable based on DeLone & McLean's ISSM and altruistic theory. Of the eight hypotheses, five hypotheses were supported by the data, aligning with DeLone & McLean ISSM and altruistic theory. DQ, velocity, and EoU were found to positively and significantly impact the successful implementation of ERD-based online queuing AIS. On the other hand, EoI does not significantly affect the successful implementation of ERD-based online queuing AIS. In addition, availability can only moderate DQ and EoU, while EoI and velocity cannot be moderated by availability on the successful implementation of ERD-based online queuing AIS.

The results showed that DQ (X1) had a significant positive effect on successfully implementing online queuing AIS (Y), thus supporting Hypothesis 1. This finding is consistent with DeLone & McLean's model and Altruistic theory. In implementing online queuing AIS, high-quality data is essential for successful operations because data quality ultimately impacts the quality of information (Norwahida & Shukeri, 2014). Accurate data is relevant data according to the needs and objectives of the user, including information such as waiting time, queue number, and customer data consistently reflects reality, ensuring that the information generated is free from errors and biases (Shah, S. Z. A., Ahmad, M., & Mahmood, F, 2018). Good data quality will produce good information quality, and vice versa, thus facilitating the level of supervision by management (Timmerman & Bronselaer, 2019; Liu, Li, & Lin, 2023).

The research findings show that EOI (X2) does not affect the successful implementation of the Online Queuing System (Y), which leads to rejecting Hypothesis 2. EoI depends on several things. The need for more awareness and understanding of EoI among patients, especially in the healthcare environment, can lead to reduced perceptions of the importance of ethics in implementing online queuing systems (Parent, 2017). In addition, the implementation of online queuing is narrow in scope and focuses on specific technical functions so that empathy may be less important than technical expertise and data analysis skills. Prioritizing efficiency and cost-effectiveness also mean empathy may not be a driving force behind implementing an AIS for online queuing. In addition, trust in the healthcare institution may reduce the need for explicit emphasis on EoI during implementation.

The third hypothesis of this study highlights the substantial and positive impact of velocity (X3) on the successful implementation of online queuing AIS in line with DeLone & McLean's model and Altruistic theory. The speed of data flow is required in a lightning manner to produce reliable and feasible information (Grover et al., 2018). High velocity will affect the speed and agility of the system in responding to changes and requests to maximize service quality by accelerating response time, increasing scalability, and increasing reliability (Xu & Duan, 2019). Velocity also facilitates a culture of continuous improvement in the online AIS implementation process. With high velocity, healthcare providers can identify and address system inefficiencies, optimize workflows, and introduce new features that improve the overall user experience and enable early detection and correction of potential problems. This proactive approach can

minimize delays, rework, and associated costs, contributing to a more cost-effective and efficient implementation. Research by Daki et al. (2017) supports that the higher the velocity, the more successful the implementation of AIS in online queues will be.

The fourth hypothesis in this study, which states that EoU (X4) has a positive and significant effect on the success of AIS implementation, is accepted. Users will more readily accept and fully utilize the features of a system if user understanding is high (Al-Okaily et al., 2023). Users who already understand the system have no difficulty adapting and using the system optimally, so the possibility of resistance to system changes will be smaller, and the training and troubleshooting process will be easier and more efficient (Al-Okaily et al., 2023). In practical terms, users who understand the system will feel more satisfied with their usage experience and can complete their tasks more quickly and accurately due to optimizing the system to achieve the desired goals. The advantage of high EoU is avoiding errors and wasting time (Al-Okaily, 2024).

The results in this study state that availability can moderate DQ on AIS implementation success, so the fifth hypothesis is accepted. Theoretically, availability refers to the availability of the AIS system that ensures that the system is always accessible and operates without significant interruption (Endo, Gonçalves, Rosendo, Gomes, Santos, Moreira & Mahloo, 2017). In this context, the high availability of the system allows data to be continuously processed and stored correctly, improving data quality in general. Operational efficiency and data accuracy are crucial and can be based on high availability, which moderates DQ by ensuring that the data generated by the AIS system is reliable and of high quality (Nurhayati et al., 2023). If the data used in the online queuing system is available in a timely, accurate, complete, and relevant manner, then the system will be more effective in providing efficient services.

The test results in this study found that availability as a moderating variable could not moderate the effect of EoI on AIS Implementation Success, so the sixth hypothesis was rejected. EoI, which includes the principles of fairness, privacy, and transparency in information management, is very important to ensure that patient data and other sensitive information are appropriately managed (Senarath & Arachchilage, 2019). However, although the AIS system is available and can be accessed at any time (high availability), more is needed to ensure implementation success if information ethics are appropriately implemented.

The seventh hypothesis in this study states that availability can moderate the velocity of AIS implementation success. Following the test results in this study, it was found that availability as a moderating variable could not moderate the effect of velocity on AIS implementation success. So, the seventh hypothesis is rejected. Although system availability guarantees that the AIS system can be accessed at any time if the system's velocity or data processing speed remains slow, more than high availability will be needed to ensure implementation success. Users will still need to complete their tasks, which can lead to frustration and decreased productivity (Tarafdar, Tu, & Ragu-Nathan, 2010). In this context, even if the AIS system is consistently available, low processing speed will hinder users' ability to work efficiently and effectively, reducing the success of AIS implementation.

The eighth hypothesis in this study states that availability can moderate EoU on AIS implementation success, so the eighth hypothesis is accepted theoretically when EoU refers to how easy it is for users to understand and use the system. When the system is easy to understand, users tend to adapt more quickly and use existing features effectively, increasing the success of AIS implementation (Kim et al., 2013). However, the availability factor also plays an essential role in this moderation. If the system is often unavailable or experiences downtime, users

will face obstacles in utilizing it optimally, even though it is easy to understand.

## CONCLUSION

Measuring the success of online queuing AIS implementation is robust and reliable based on DeLone & McLean's ISSM and altruistic theory. Five of the eight hypotheses were supported by the data, aligning with DeLone & McLean's ISSM and altruistic theory. DQ, Velocity, and EoU were found to have a positive and significant impact on the successful implementation of ERD-based online queuing AIS. On the other hand, EoI does not significantly affect the successful implementation of ERD-based online queuing AIS. In addition, availability is only able to moderate DQ and EoU. At the same time, EoI and velocity cannot be moderated by availability in the successful implementation of ERD-based online queuing AIS.

The implications of this research provide a significant theoretical contribution to the accounting information system field, especially in the context of implementation in hospitals, by utilizing the Entity Relationship Diagram (ERD) concept. By analyzing the factors that influence the success of accounting information system implementation and adding availability as a moderating variable, this study expands the understanding of how system availability can affect the effectiveness and efficiency of information technology implementation in the health sector. The results of this study help clarify the relationship between good information system design, system availability, and implementation success and provide a more in-depth theoretical framework on the role of availability in moderating the factors that contribute to the success of accounting information systems. The findings also open up opportunities for follow-up research that can test other moderating variables or explore the implementation of accounting information systems in different sectors or regions, thus contributing to theory development in information systems management and accounting technology.

This research makes a valuable practical contribution to managing A-type hospitals in North Sumatra Province and implementing accounting information systems more effectively. This study helps hospitals understand the importance of system availability in ensuring smooth operations and efficient financial management by analyzing the factors that influence implementation success and including availability as a moderating variable. Hospitals can use this study's findings to design a more resilient accounting information system implementation strategy, focusing on improving system availability and reliability. In addition, the Entity Relationship Diagram (ERD) concept used in this study provides practical guidance in designing a clear and efficient data structure, which can facilitate the integration and management of information. Overall, the results of this study can assist hospitals in improving service quality, speeding up the online queuing process, and increasing patient satisfaction by implementing better and more available information systems.

### Research Limitation

This study focuses only on A-type hospitals in North Sumatra Province, so the results cannot be generalized to other types of hospitals or regions with different conditions. In addition, this study uses availability as the only moderating variable, so it does not consider other moderating factors that may also have an effect, such as management support or staff technical competence. The data used in this study may be limited to a certain period, so it cannot capture the dynamics of long-term changes in implementing accounting information systems. Data collection methods, such as surveys or interviews, may have a respondent bias that can affect the validity of the research results. This research relies on the Entity Relationship Diagram (ERD) concept, which, although applicable, may only cover

some technical and functional aspects of more complex accounting information systems.

**Suggestion**

Based on the study's limitations, future research can distribute questionnaires and conduct short interviews to ensure the respondents' accuracy of answers and reduce unwillingness to participate. Questionnaires and short interviews can be given to more diverse respondents. Furthermore, further research is expected to develop an integration model with different theories and use other variables such as infrastructure, perceived usefulness, trust, and cost to implement online queuing AIS successfully.

***Declaration by Authors***

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