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System quality, information quality, perceived usefulness, and employee performance: A moderated-mediation analysis

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Abstract

The decreased number of maintenance application users occurring over the years since the initial launch of this application in 2019 would have some impacts on report provision, inflexible data access, and unreal time or not updated reports. Maintenance application reliability has never been tested to improve employee performance. This research aimed to know directly and indirectly the influence of system quality, information quality, perceived usefulness, and IT leadership on user satisfaction and, in turn, on employee performance improvement. This research used a quantitative approach with a sample of as many as 270 employees in the technical unit of the airport managed by Angkasa Pura II. Data was gathered through a questionnaire using a Likert scale and analyzed using the aid of a statistical tool of SmartPLS version 4. It was expected that the result of this research could be used to help the management or the interested parties manage and use the maintenance application in both developing applications and improving employee performance, especially those related to the quality of the application system, since an analysis resulted that the system quality did not influence the satisfaction of users and the performance of employees who use the application. Employee performance can improve because the employees of technical functions get relevant and accurate information from maintenance applications. Employee performance can improve because the employees of the technical function consider that the maintenance application is beneficial to support their job. The level of user satisfaction with the maintenance application, in this case, the employees of the technical function, is not influenced by the system quality of the application. The recommendation was to pay more attention to several things related to the system quality application, such as speed of response and the ease of accessing the application, to increase user satisfaction and improve employee performance.

Keywords: Employee performance, Information quality, IT leadership, Perceived usefulness, System quality, User satisfaction.

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1. Introduction

The management of Angkasa Pura II has implemented the utilization of information technology applications for maintenance in the form of a maintenance application. The application is designed to support technical jobs and functions running operational activities and equipment repairs in accordance with the prevailing regulations. Some problems have been observed previously, such as the data of application users indicating a decreased use of the application over the years since this application was initially launched in 2019. A few or fewer users of this application will have some impacts in the form of waste in report provision, inflexible data access, unreal time, or un-updated reports, causing the data to become inaccurate and difficult to analyze. The reliability of such a maintenance application has not been tested. As the port management, Angkasa Pura II is one of the companies operating with enormous fixed assets of less than 34 trillion rupiah. With this amount, asset management, especially the maintenance of facilities and infrastructures, needs to be implemented effectively and efficiently by utilizing the advancements of recent information technology in the form of a website or application. The utilization of information technology for maintenance in the form of an application or website has been carried out by the management of Angkasa Pura II in the form of a maintenance application. This application is designed to support technical jobs and functions running operational activities and equipment repairs in accordance with the prevailing regulations. Some features of this application that can be utilized include equipment support data, standard operating procedures, monthly reports, equipment performance, log books, idle equipment, mutation and history of the equipment, information on maintenance officers, and up-to-date work budgets, which are presented in real-time.

Management expects that work performance will improve by using technology or information systems. Certain technologies, websites, or applications are believed to improve productivity and employee performance [1, 2]. The fact in the airport technique unit managed by Angkasa Pura II is that since the launch of the maintenance application, there have been many activities to access the application. However, the number of users declined over the years up to 2023, when there were only 71 application users compared to the launch of this application in 2019, which had as many as 785 users. The decreasing use of maintenance applications indicates the possibility of an anomaly that makes users not use or feel reluctant to use the application. This small or declining number of application users is predicted to be caused by the fact that users feel difficulty or dissatisfaction with the new information system, and even the need to support performance, which is not fulfilled when using the information system, making the users seek another alternative or revert to manual methods.

Success models and information system acceptance can be adopted and evaluated using the Technology Acceptance Model (TAM). Umarji and Seaman [3] stated that this is a powerful model for measuring information system software. Wallace and Sheetz [4] stated that TAM explains why someone uses or does not use a particular technology to perform work. DeLone and McLean [5] explain that a website system or application cannot be separated from sound system quality and the ability to provide quality information. The urgency of this research is to understand what happens with the increasing number of activities to access many applications, which is inversely proportional to the declining number of application users. Thus, can the utilization of this maintenance application meet the expectations of Angkasa Pura II Management so that it can improve employee performance in the technical unit? By adopting the TAM model and the model of information system acceptance, DeLone and McLean [5] examine the influence of system quality, information quality, perception of benefit, and the effect of leadership on user satisfaction with the maintenance application.

2. Literature Review

2.1. The Influences of System Quality, Information Quality, and Perceived Usefulness on Employee Performance

Some related research has been conducted with six variables being studied: system quality, information quality, and perceived usefulness as exogenous variables; user satisfaction as a mediating variable; and IT Leadership as a moderating variable, whereas employee performance is an endogenous variable. The quality of a system can be measured by seeing its functional part, that is, usefulness. So, with such a theory, system quality is vital in facilitating users to complete their work, thus supporting employee performance.

The first hypothesis development relates to system quality and employee performance. In general, system quality is the step that concentrates on the specification of a target system Permana and Setianto [6]. Hameed and Waheed [7] stated that employee performance can result from employee development for those with good productivity and performance. Shahzadi et al. [8] found that employee performance relates to quality work results, the number of works accomplished, presence at the workplace, and the punctuality of assignment accomplishment. A higher degree of employee performance will result in

satisfied and happy employees, Elnaga and Imran [8] and Silitonga et al. [10]. Riandi, et al. [9] and Pratiwi, et al. [10] state that system quality can influence employee performance.

The second hypothesis development relates to information quality and employee performance. DeLone and McLean [5] state that information quality is a product or system with detailed and precise information that makes the information valuable. Zhu, et al. [11] stated that information quality is the main factor in decision-making. However, the influence of information quality on the whole service quality, especially on the image of the airport, has not been further studied Hwang et al. [14]. Gustavsson and Wänström [12] revealed that information quality satisfies both the information provider and receiver. Investment in information management systems and the method of service delivery can offer a higher profit [13, 14].

The third hypothesis development relates to perceived usefulness and employee performance. Certain technologies or website applications will improve productivity and employee performance Caffaro, et al. [1]. Pranitasari et al. [18] state that perceived usefulness influences employee performance positively and significantly. However, Permana and Setianto [6] mention the existence of an insignificant correlation with employee performance. Thus, the first hypothesis (H1), second hypothesis (H2), and third hypothesis (H3) can be formulated as follows:

Hypothesis 1. System quality directly influences employee performance.

Hypothesis 2. Information quality directly influences employee performance.

Hypothesis 3. Perceived usefulness directly influences employee performance.

2.2. The Influences of System Quality, Information Quality, and Perceived Usefulness on User Satisfaction

System quality and user satisfaction are the fourth hypothesis development. As the fourth variable, user satisfaction is used to measure the success of the combination of information systems and their use [15]. In some cases, user satisfaction is essential in determining whether an information system is acceptable for the users or companies [16]. User satisfaction then influences individuals, and the influence on those individuals will collectively impact the organization, Ntemi and Mbamba [17] and Riandi et al. [11]. Deb and Agrawal [18] and O'cass and Carlson [19] stated that information systems are used to measure system quality, for example, ease of use, which is an essential factor. System quality generally influences user satisfaction [20, 21]. Some other opinions [22-24] also state that system quality influences user satisfaction.

Information quality and user satisfaction are the fifth hypothesis's development. Achmadi and Siregar [25], Prasetya et al. [30], and Li [31] explain that information quality can influence user satisfaction. User satisfaction will increase while the perception of information quality improves. Other researchers simultaneously say that information quality influences user satisfaction, Hamsinar et al. [32] and Ricardianto et al. [33]. Lin [26] proved that information quality is closely related to user satisfaction, especially in airports.

The sixth hypothesis development relates to perceived usefulness and user satisfaction. A study by Nugroho et al. [35] indicated that perceived usefulness influences user satisfaction in online streaming subscriptions. Olivia and Marchyta [27] revealed that perceived usefulness can significantly influence user satisfaction. Overall, the services delivered by airport officers are the most influential predictor of passenger satisfaction [28, 29]. Thus, the fourth hypothesis (H4), the fifth hypothesis (H5), and the sixth hypothesis (H6) can be formulated as follows:

Hypothesis 4. System quality directly influences user satisfaction.

Hypothesis 5. Information quality directly influences user satisfaction.

Hypothesis 6. Perceived usefulness directly influences user satisfaction.

2.3. The Influences of Perceived Usefulness on Employee Performance Moderated by IT Leadership

The Technology Acceptance Model (TAM) is a model that explains why someone chooses to use or not to use specific technology to perform work [30]. It explains that one of the constructs of the TAM model, namely perceived usefulness, can measure the confidence level of using specific information systems or technology that will improve work performance. The adoption of information system acceptance using the technology acceptance model as well as the DeLone and McLean [5] model have been developed and widely used, including those for maintenance applications like in the research conducted by Roky and Al Meriouh [31] and Anvari, et al. [32] which state that IT is an essential factor of organizational success because it aligns and coordinates the organization into the right path to reach the organizational objectives. In the seventh hypothesis development, system quality influences user satisfaction, moderated by IT leadership. Thus, the seventh hypothesis (H7) can be formulated as follows:

Hypothesis 7. Perceived usefulness indirectly influences employee performance, moderated by IT leadership.

2.4. The Influences of System Quality, Information Quality, and Perceived Usefulness on Employee Performance Mediated by User Satisfaction

The eighth hypothesis relates system quality and employee performance mediated by user satisfaction. Riandi et al. [11] find that user satisfaction as the intervening variable mediating the influence of system quality on performance is the measurement of the success of an e-learning system. As the ninth hypothesis was developed, information quality influences employee performance mediated by user satisfaction. Aguisanda et al. [42] and Mantik et al. [43] proved that the influence of information quality on employee performance mediated by user satisfaction is statistically significant. The tenth hypothesis development is the influence of perceived usefulness on employee performance mediated by user satisfaction. Toli and Bharata [33] found that user satisfaction mediates the impact of perceived usefulness on the intention to use an application. Thus, the eighth hypothesis (H8), the ninth hypothesis (H9), and the tenth hypothesis (H10) can be formulated as follows:

Hypothesis 8. System quality influences employee performance, mediated by user satisfaction.

Hypothesis 9. Information quality influences employee performance mediated by user satisfaction.

Hypothesis 10. Perceived usefulness influences employee performance, mediated by user satisfaction.

Based on the above theoretical and bibliographical reviews explaining the correlations among variables proposed by previous researchers, it is shown that the use of information systems can improve employee performance because the users feel satisfied and receive benefits. This research aims to analyze both the direct and indirect influences of the system quality of maintenance applications, the information quality of maintenance applications, and the perceived usefulness of maintenance applications on employee performance through user satisfaction. Related to its objective, this application is designed to directly and indirectly improve the performance of all preventive and corrective maintenance steps. Therefore, further evaluation is needed to determine what causes employees to be reluctant to use or not use this maintenance application. The research to be conducted will study the employees who use the maintenance application at the airport by examining whether direct and indirect influences exist among the variables. Figure 1 is the conceptual model of this research.

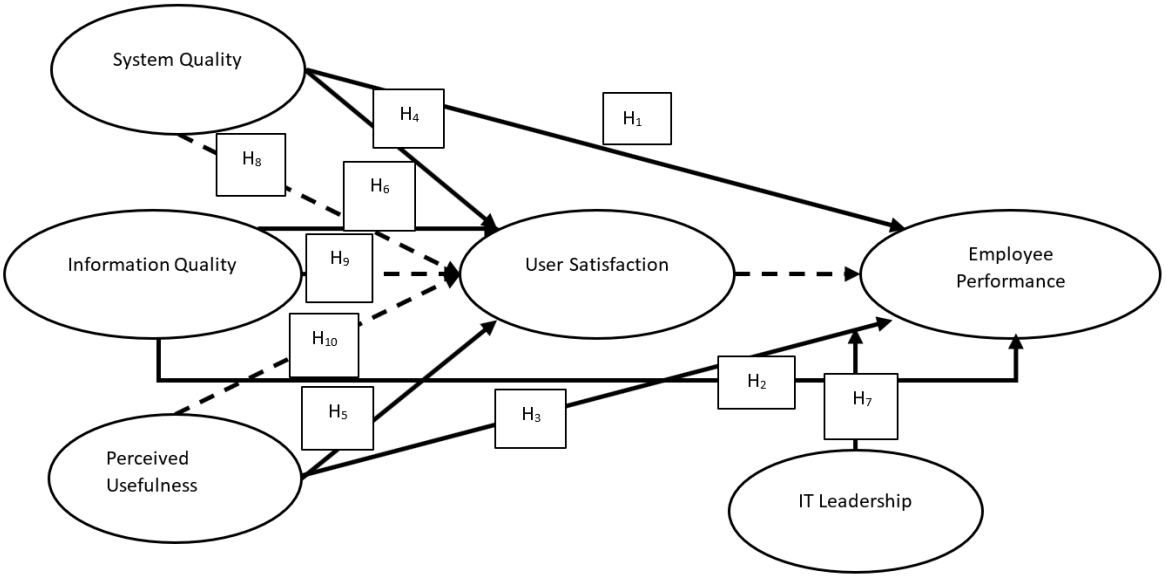

Figure 1.
Conceptual Model.

3. Research Methods

In this research, questionnaires are distributed to 270 employees in the technical functions as the airport sample managed by Angkasa Pura II. The data processing method in this research uses the Structural Equation Model aided by the software SmartPLS version 4. Six research variables are studied: system quality as the first exogenous variable uses four operational dimensions, namely ease of use, flexibility of the system, response time, and security system; information quality as the second exogenous variable uses five operational dimensions, namely completeness, relevance, accuracy, timeliness, and presentation of information; perceived usefulness, the third exogenous variable, uses five operational dimensions, namely working more quickly, efficacy, effectiveness, making the job more manageable, and increasing productivity. User satisfaction, as a mediating variable, uses four operational dimensions: satisfaction with information usage, efficiency, quality of information and services, and satisfaction with display items. As the moderating variable, IT Leadership uses five operational dimensions: communication and encouragement, decisiveness, intelligence and clarity, problem-solving and strategic thinking, and delegation. The endogenous variable is employee performance, using five operational dimensions: quality of work, job knowledge, cooperation, initiative, and personal quality. In this research, there are three steps of data analysis: measurement. The model uses convergent validity and discriminant validity; the reliability test uses composite reliability, average variance extracted, and Cronbach's alpha; and the inner model measurement uses the coefficient of determination, predictive relevance, and goodness of fit index. Hypothesis testing needs to be done directly using the SmartPLS software, with the steps starting from calculate—bootstrapping.

This research uses path analysis with a trimming model path analysis. The population in this research consists of seafarers who graduated from Balai Pendidikan dan Pelatihan Ilmu Pelayaran (Center for Maritime Education and Training, Tangerang), numbering 1,232 seafarers. The number of samples in this research is 93 seafarers who graduated from the Tangerang Maritime Science Education and Training Center. In this research, the sampling method used is the simple random sampling technique. This technique is employed because the population is homogeneous. Job satisfaction, as the first exogenous variable, uses seven variable dimensions, namely: (1) Compensation, (2) Promotion, (3) Work climate, (4) Satisfaction with management, (5) Status, (6) Job placement, and (7) Job characteristics [34, 35]. The second exogenous variable is work stress, which has six variable dimensions, namely: (1) Physical stressor, (2) Psychosocial stressor, (3) Social stressor, (4) High workload, and (5) High management demand. At the same time, seafarer performance, as the intervening variable, has four variable dimensions, namely: (1) Work quality, (2) Work quantity, (3) Discipline, and (4) Cooperation. The endogenous variable is shipping safety, which has four variable dimensions, namely: (1) Ship’s seaworthiness, (2)

Navigation, (3) Seafarer's competence, and (4) Standard Operating Procedure. Instrument Test Calibration is conducted through validity tests and reliability tests.

4. Results and Discussion

4.1. Measurement Model (Outer Model)

Table 1.
Result of Validity Test of Heterotrait-Monotrait Ratio.

Variables	IT Leadership	Customer Satisfaction	Employee Performance	Information Quality	System Quality	Perceived Usefulness
IT Leadership						
Customer Satisfaction	0.433					
Employee Performance	0.414	0.773				
Information Quality	0.576	0.659	0.642			
System Quality	0.756	0.319	0.372	0.32		
Perceived Usefulness	0.566	0.65	0.645	0.69	0.438	
IT Leadership x Perceived Usefulness	0.526	0.8	0.729	0.769	0.47	0.726

From Table 1, it can be seen that there are no correlation values for heterotrait ratios greater than 0.9. This means that the values fulfilled the criteria for the discriminant validity test. The value of each construct is empirically different from that of other constructs. Therefore, the indicators in system quality, information quality, perceived usefulness, customer satisfaction, IT leadership, and employee performance are discriminantly valid. Table 2 shows that the value of the composite reliability of each variable is greater than 0.7. The value of average variance extracted is more critical than 0.5, and the coefficient value of Cronbach's alpha is more important than 0.6, so it can be said that the variables of system quality, information quality, perceived usefulness, user satisfaction, IT leadership, and employee performance have high reliability.

Table 2.
Result of Reliability Test.

Variable	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
IT Leadership	0.833	0.838	0.882	0.6
Customer Satisfaction	0.918	0.918	0.942	0.802
Employee Performance	0.949	0.95	0.961	0.831
Information Quality	0.94	0.942	0.954	0.807
System Quality	0.826	0.832	0.885	0.657
Perceived Usefulness	0.94	0.941	0.954	0.806

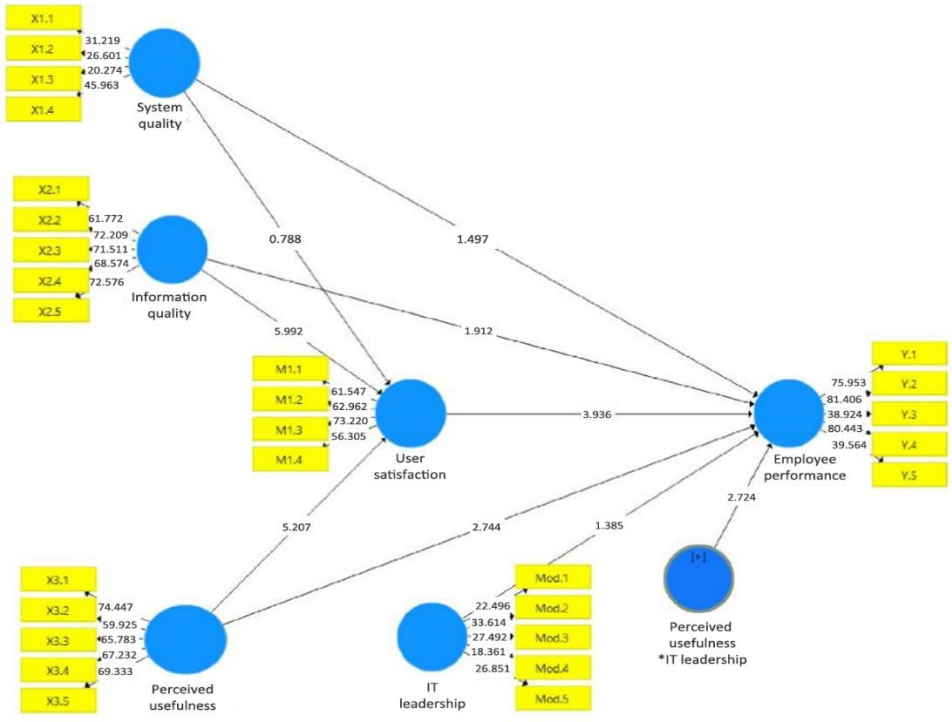

Figure 2.
Path Diagram of Research Theoretical Model.

4.2. Structural Model (Inner Model)

The analysis shows that the value of the r_{square} of the user satisfaction variable is 0.452, meaning that the influence of the independent variables (system quality, information quality, and perceived usefulness) on user satisfaction is 45.2%. The r_{square} value of employee performance is 0.603, meaning that the independent variables (system quality, information quality, and perceived usefulness) on employee performance are 60.3%. The result of the Q^2 value measurement is 0.783, meaning that the structural model can explain predictive relevance by as much as 78.3%. Based on this value, the structural model in this research has an intense goodness of fit index. It is known that the value of the Goodness of fit index is 0.629, which is categorized as high. In addition, the value of 0.629 means the data diversity in this research can be explained by the structural model as much as 62.9%. Thus, the compatibility level of the measurement and structural models is categorized as high.

Hypothesis testing in this research consists of two parts: direct and indirect influence testing, conducted using bootstrapping in the smartPLS software. The path diagram of this research can be seen in Figure 2. The direct influence testing can be seen in Table 3.

Table 3.
Path Coefficient Value of Direct Influence.

Hypothesis	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
H1: System quality -> Employee performance	0.085	0.087	0.056	1.534	0.125
H2: Information quality -> Employee performance	0.132	0.136	0.063	2.108	0.035
H3: Perceived Usefulness -> Employee performance	0.142	0.146	0.051	2.805	0.005
H4: System quality -> User satisfaction	0.039	0.037	0.05	0.786	0.432
H5: Information quality -> User satisfaction	0.38	0.378	0.06	6.37	0
H6: Perceived Usefulness -> User satisfaction	0.343	0.343	0.062	5.534	0

Based on the result of the analysis described in Table 3, the influence of system quality on employee performance has the value of the original sample as big as 0.085, a t_{value} of 1.534, which is less than 1.96, and a p_{value} of 0.125, which is more significant than 0.05, so that it can be said that system quality does not influence employee performance. It means H1 is rejected. The first hypothesis testing finds that system quality does not influence employee or job performance. This finding aligns with the research by Saputra et al. [45] and Alhendawi and Baharudin [46], which state that system quality does not influence employee performance. So, when the system quality of the maintenance application, especially the speed of response time and the ease of accessing it, does not match or decrease, it will not influence employee performance. However, the result of this study is not in line with the previous research by Ryan et al. [47] and Permana and Setianto [6], finding that system quality can influence employee performance. Thus, based on the previous studies, although there are some different research results, it can be concluded that system quality does not directly influence employee performance.

The influence of information quality on employee performance has a value of the original sample as big as 0.132, a t_{value} of 2.108, bigger than 1.96, and a p_{value} of 0.035, less than 0.05. So, information quality positively and significantly influences employee performance. It means H2 is accepted. The second hypothesis testing finds that information quality significantly influences employee performance. This means the information quality obtained from the maintenance application is suitable, positively impacting performance. The result of this study is not supported by Saputra et al. [45], stating that information quality does not significantly influence employee performance. Therefore, when employees receive quality information from the maintenance application, it will improve employee performance. Good information quality from the application enables employees to make decisions quickly and appropriately. This shortens the time to get the correct information. Thus, based on the previous studies, although there are different research results, information quality positively and significantly influences employee performance.

The influence of perceived usefulness on employee performance has the value of the original sample as big as 0.142, a t_{value} of 2.805, which is more significant than 1.96, and a p_{value} of 0.005, which is less than 0.05. Therefore, the quality of perceived usefulness positively and significantly influences employee performance. It means H3 is accepted. The third hypothesis testing finds that perceived usefulness significantly influences employee performance. This research supports the results of analysis by Permana and Setianto [6], Omar et al. [48], and Iswanto et al. [49], explaining that perceived usefulness influences employee performance. The results of other studies align with this research, and perceived usefulness directly influences employee performance [36]. This finding shows that perceived usefulness is the primary variable motivating employee performance if supported by high-quality system information. Setiawati et al. [50] say that by utilizing sufficient information technology, the company will improve employee performance in the service delivery to the users of airport services. Thus, based on the previous studies, perceived usefulness positively and significantly influences employee performance.

The influence of system quality on user satisfaction has the value of the original sample as big as 0.039, a t_{value} of 0.786, which is less than 1.96, and a p_{value} of 0.432, which is more significant than 0.05. So, system quality does not influence user satisfaction. It means that H4 is rejected. The fourth hypothesis testing finds that system quality does not influence user satisfaction. Nuryanti, et al. [37] state that the perception of good system quality can increase application satisfaction. Vice versa, poor system quality will decrease the level of user satisfaction. This research supports the result of Daryanto [38]

stating that system quality positively and significantly influences user satisfaction. Alternatively, it is not as the users expect; on one side, system quality has fulfilled the technical standard, and on the other side, employees, as the application users, have higher expectations than the application system quality. Thus, based on the previous studies, despite some different research results, system quality does not directly influence user satisfaction.

The influence of information quality on user satisfaction has the value of the original sample as big as 0.38, a t_{-value} of 6.37, which is more significant than 1.96, and a p_{-value} of 0, which is less than 0.05. So, Information quality positively and significantly influences user satisfaction. It means that H5 is accepted. The fifth hypothesis testing finds that information quality significantly influences user satisfaction. This finding aligns with the research by Agusinta et al. [53], Achmadi and Siregar [29], and Daryanto [38] stating that information quality can positively and significantly influence the users' satisfaction with application or system information. Good information quality can increase the positive experience of using an application, which finally increases the satisfaction of employees who use the application. Accurate and updated information will make employees satisfied with the system being used. However, the results of the study were different. Through data analysis, Isnaeningsih et al. [54] show that information quality does not influence user satisfaction. Thus, based on the previous studies, despite some different research results, information quality positively and significantly directly influences user satisfaction.

The influence of perceived usefulness on user satisfaction has the value of the original sample as big as 0.343, a t_{-value} of 5.534, which is more significant than 1.96, and a p_{-value} of 0, which is less than 0.05. So, the quality of perceived usefulness positively and significantly influences user satisfaction. It means that H6 is accepted. The previous research by Rezvani et al. [55] and Olivia and Marchyta [27] shows that perceived usefulness positively and significantly influences user satisfaction. Another study by Nugroho et al. [35] shows that perceived usefulness influences user satisfaction in subscribing to online streaming. Ricardianto et al. [56] said that the benefits experienced in using technology will have an impact on the intention to reuse it. The maintenance application users feel satisfied because they benefit from using the application. However, Daryanto [38] believes that perceived usefulness is not directly related to user satisfaction. Thus, based on the previous studies, despite 29some different research results, perceived usefulness positively and significantly directly influences user satisfaction.

Table 4 shows the result of hypothesis testing on indirect influence through the moderation of IT leadership and the mediation of user satisfaction. It also shows this research's indirect influence of mediation and moderation variables.

Table 4.
Value of Path Coefficient of Indirect Influence.

Hypothesis	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
H7: IT Leadership x Perceived Usefulness -> Employee performance	-0.13	-0.126	0.046	2.824	0.005
H8: System quality -> User satisfaction -> Employee performance	0.016	0.013	0.02	0.809	0.418
H9: Information quality -> User satisfaction -> Employee performance	0.154	0.152	0.045	3.414	0.001
H10: Perceived Usefulness -> User satisfaction -> Employee performance	0.139	0.138	0.045	3.075	0.002

The influence of perceived usefulness on employee performance through the moderation of IT leadership has the value of the original sample as big as -0.13, a t_{-value} of 2.824, which is more significant than 1.96, and a p_{-value} of 0.005, which is less than 0.05. So, IT leadership negatively and significantly moderates the influence of perceived usefulness on employee performance. It means that H7 is rejected. The seventh hypothesis testing finds that IT leadership negatively and significantly moderates the influence of perceived usefulness on employee performance. It means decreased support from leadership, such as a lack of effective communication with employees and a lack of assertiveness to act and make decisions when a problem exists in using maintenance applications. In other words, if the influence of leadership is not good, although there is a perception that maintenance application is beneficial, it will lower employee performance. Vice versa, good leadership will strengthen and help employees feel that using technology can bring about positive benefits and, in turn, improve employee performance. The result of this research is not in line with the research by Muhajirin and Ali [39]; Aziz, et al. [40] and Charisma [41] stating that good leadership can help the successful acceptance of information and increase employee perception of the use of technology which can be beneficial and influence employee performance. Thus, based on the previous studies, although there are different research results, perceived usefulness positively and significantly influences user satisfaction despite different research results. However, it can be concluded that IT leadership moderates negatively and significantly between perceived usefulness and employee performance.

The influence of system quality on employee performance through the mediation of user satisfaction has the value of the original sample as big as 0.016, a t_{-value} of 0.809, which is less than 1.96, and a p_{-value} of 0.418, which is more significant than 0.05. So, user satisfaction does not mediate the influence of system quality on employee performance. It means H8 is rejected. The eighth hypothesis testing finds that user satisfaction does not mediate the influence of system quality on employee performance. User satisfaction does not always become the bridge between a system and employee performance. Therefore, the quality of the application system must be improved directly, and system quality must be ensured that system quality

support the efficiency of employee performance without depending on the satisfaction factor of system users. Indeed, the result of this study is different from the research by Riandi et al. [11], explaining that user satisfaction as the intervening variable can mediate the influence of system quality on employee performance. Thus, based on the previous studies, despite different research results, user satisfaction cannot indirectly mediate the impact of system quality on employee performance.

The influence of information quality on employee performance through the mediation of user satisfaction has the value of the original sample as big as 0.154, a t_{-value} of 3.414, which is more significant than 1.96, and a p_{-value} of 0.001, which is less than 0.05. So, user satisfaction significantly influences employee performance and information quality. It means that H9 is accepted. The ninth hypothesis testing finds that user satisfaction significantly mediates information quality's influence on employee performance. This is supported by the research conducted by Aguisanda et al. [42] showing that, in general, information quality influences employee performance mediated by user satisfaction. Increased satisfaction with quality information systems among the application employees will motivate them, reduce misunderstandings, and improve their performance. Therefore, users' experience can become the key to improving employee performance and the organization. In particular, the ability of airport information services to accomplish the job by implementing its function at certain times and in specific working conditions and environments [26]. Thus, based on the previous studies, despite different research results, user satisfaction can indirectly mediate the influence of information quality on employee performance.

The influence of perceived usefulness on employee performance through the mediation of user satisfaction has the value of the original sample as big as 0.139, a t_{-value} of 3.075, which is more significant than 1.96, and a p_{-value} of 0.002, which is less than 0.05. So, user satisfaction significantly influences perceived usefulness on employee performance. It means that H10 is accepted. The tenth hypothesis testing finds that user satisfaction significantly mediates perceived usefulness on employee performance. Mantik et al. [43] and Olivia and Marchyta [27] support this finding that perceived usefulness can influence employee performance by mediating user satisfaction. Users believe the maintenance application is beneficial and feel satisfied that it improves employee performance. Employee performance will increase when users feel confident because they perceive the maintenance application as beneficial. Thus, based on the previous studies, perceived usefulness indirectly influences employee performance by mediating user satisfaction. This research, which includes six variables, including mediating and moderating variables, using 28 operational dimensions simultaneously and partially used for the maintenance application at Soekarno Hatta Airport, Indonesia, can now be considered a novelty in research.

5. Conclusions

Employee performance can improve because the employees in technical functions receive relevant and accurate information from maintenance applications. Employee performance can improve because the employees in technical functions consider that the maintenance application is beneficial in supporting their jobs. The level of user satisfaction with the maintenance application, in this case, the employees in technical functions, is not influenced by the system quality of the application. User satisfaction can increase because the technical function employees receive relevant and accurate information quality from the maintenance application. User satisfaction can increase because the technical function employees consider that the maintenance application is beneficial in supporting their jobs. Poor leadership weakens the influence of perceived usefulness on employee performance. The technical function employees have not been satisfied with the system quality of the maintenance application, so it does not influence employee performance. The employees in technical functions feel happy with the information quality presented in the maintenance application, which indirectly influences employee performance. The technical function employees are not satisfied with the benefits they receive when using maintenance applications. Therefore, it indirectly influences the improvement of employee performance. Overall, based on the results of this research, it can be concluded that one of the factors that influenced and created a gap in the form of decreased user applications over the years since the launch of this application in 2019 is the system quality of the maintenance application itself.

The result of this research can be used to help management or interested parties manage and utilize the maintenance application, both in application development and in improving employee performance. The analysis particularly relates to the system quality of the application, which does not influence user satisfaction or the performance of employees who use the application. User satisfaction does not mediate the influence of system quality on employee performance. The recommendation is that more attention should be paid to several aspects related to the system quality of the application, such as response speed and ease of access to the application, to influence the level of user satisfaction and improve employee performance.

References

[1] F. Caffaro, M. M. Cremasco, M. Roccato, and E. Cavallo, "Drivers of farmers' intention to adopt technological innovations in Italy: The role of information sources, perceived usefulness, and perceived ease of use," *Journal of Rural Studies*, vol. 76, pp. 264-271, 2020. https://doi.org/10.1016/j.jrurstud.2020.04.028

[2] N. Nofrisel *et al.*, "Impact of responsibility shifts on warehouse performance of Indonesian police logistics staff," *International Journal of Advanced and Applied Sciences*, vol. 11, no. 8, pp. 229-238, 2024. https://doi.org/10.21833/ijaas.2024.08.024

[3] M. Umarji and C. Seaman, "Predicting acceptance of software process improvement," *ACM SIGSOFT Software Engineering Notes*, vol. 30, no. 4, pp. 1-6, 2005. https://doi.org/10.1145/1083106.1083121

[4] L. G. Wallace and S. D. Sheetz, "The adoption of software measures: A technology acceptance model (TAM) perspective," *Information & Management*, vol. 51, no. 2, pp. 249-259, 2014. https://doi.org/10.1016/j.im.2013.12.003

[5] W. H. DeLone and E. R. McLean, "The DeLone and McLean model of information systems success: a ten-year update," *Journal of Management Information Systems*, vol. 19, no. 4, pp. 9-30, 2003. https://doi.org/10.1080/07421222.2003.11045748

[6] I. B. G. A. Permana and D. P. Setianto, "The impact of task technology fit, system quality and information quality to user performance: Perceived ease usefullness and perceived ease of use as mediation," *International Journal of Organizational Innovation (Online)*, vol. 12, no. 2, pp. 335-340, 2019.

[7] A. Hameed and A. Waheed, "Employee development and its affect on employee performance a conceptual framework," *International Journal of Business and Social Sciences*, vol. 2, no. 13, pp. 224–229, 2011.

[8] A. Elnaga and A. Imran, "The effect of training on employee performance," *European Journal of Business and Management*, vol. 5, no. 4, pp. 6-13, 2020. https://doi.org/https://doi.org/10.36555/almana.v4i3.1477

[9] M. H. Riandi, H. Respati, and S. Hidayatullah, "Conceptual model of user satisfaction as mediator of e-learning services and system quality on students' individual performance," *International Journal of Research in Engineering, Science and Management*, vol. 4, no. 1, pp. 60-65, 2021. https://doi.org/https://doi.org/10.47607/ijresm.2021.466

[10] N. J. Pratiwi, A. A. Purwati, M. L. Hamzah, and N. Nyoto, "The effect of service quality and academic information systems quality on student's satisfaction," *International Journal of Economics Development Research*, vol. 3, no. 1, pp. 51-70, 2022. https://doi.org/10.37385/ijedr.v3i1.318

[11] W. Zhu, J. Mou, and J. F. Cohen, "A cross-continent analysis of the invariance of product information in cross-border electronic commerce," *Journal of Global Information Management*, vol. 29, no. 6, pp. 1-23, 2021. https://doi.org/10.4018/JGIM.289654

[12] M. Gustavsson and C. Wänström, "Assessing information quality in manufacturing planning and control processes," *International Journal of Quality & Reliability Management*, vol. 26, no. 4, pp. 325-340, 2009. https://doi.org/https://doi.org/10.1108/02656710910950333

[13] M. Kanan, "Investigating the relationship between information quality, system quality, service quality, and supply chain performance in the manufacturing sector of Saudi Arabia: An empirical study," *Uncertain Supply Chain Management*, vol. 11, no. 4, pp. 1589-1598, 2023. https://doi.org/10.5267/j.uscm.2023.7.010

[14] E. Melina and E. Endri, "Investment decisions and firm value: The moderating role of profitability," *International Journal of Economics and Financial Issues*, vol. 15, no. 1, pp. 1-8, 2025. https://doi.org/10.32479/ijefi.17338

[15] A. E. Dreheeb, N. Basir, and N. Fabil, "Impact of system quality on users' satisfaction in continuation of the use of e-learning system," *International Journal of e-Education, e-Business, e-Management and e-Learning*, vol. 6, no. 1, p. 13, 2016. https://doi.org/10.17706/ijeeee.2016.6.1.13-20

[16] L. R. Kalankesh, Z. Nasiry, R. A. Fein, and S. Damanabi, "Factors influencing user satisfaction with information systems: a systematic review," *Galen Medical Journal*, vol. 9, p. e1686, 2020. https://doi.org/https://doi.org/10.31661/gmj.v9i0.1686

[17] W. D. Ntemi and U. O. Mbamba, "The relationship between electronic readiness and corruption reduction: Countrywide data analysis," *Cogent Business & Management*, vol. 3, no. 1, p. 1257555, 2016. https://doi.org/https://doi.org/10.1080/23311975.2016.1257555

[18] M. Deb and A. Agrawal, "Factors impacting the adoption of m-banking: Understanding brand India's potential for financial inclusion," *Journal of Asia Business Studies*, vol. 11, no. 1, pp. 22-40, 2017. https://doi.org/https://doi.org/10.1108/JABS-11-2015-0191

[19] A. O'cass and J. Carlson, "An e-retailing assessment of perceived website-service innovativeness: Implications for website quality evaluations, trust, loyalty and word of mouth," *Australasian Marketing Journal*, vol. 20, no. 1, pp. 28-36, 2012. https://doi.org/https://doi.org/10.1016/j.ausmj.2011.10.012

[20] M. Mendrofa and S. Hastuti, "The effect of system quality and information quality on system user satisfaction Accounting information," *Equity: Jurnal Akuntansi*, vol. 5, no. 1, pp. 43–52, 2024. https://doi.org/https://doi.org/10.46821/equity.v5i1.510

[21] P. Ricardianto *et al.*, "The impact of service quality, ticket price policy and passenger trust on airport train passenger loyalty," *Uncertain Supply Chain Management*, vol. 11, no. 1, pp. 307-318, 2023. https://doi.org/10.5267/j.uscm.2022.9.012

[22] D. A. Purnomo, S. Hidayatullah, and D. A. Prasetya, "The influence of system use and user satisfaction as a mediator of system quality, information quality and E-learning service quality on benefits," *Benefits*, vol. 13, p. 20, 2022.

[23] A. Aldholay, Z. Abdullah, O. Isaac, and A. M. Mutahar, "Perspective of Yemeni students on use of online learning: Extending the information systems success model with transformational leadership and compatibility," *Information Technology & People*, vol. 33, no. 1, pp. 106-128, 2020. https://doi.org/https://doi.org/10.1108/ITP-02-2018-009

[24] I. Muda and E. Ade Afrina, "Influencia de los recursos humanos en el efecto de la calidad del sistema y la calidad de la información en la satisfacción del usuario del sistema contable basado en valores devengados," *Contaduría y Administración*, vol. 64, no. 2, pp. 1-24, 2019. https://doi.org/https://doi.org/10.22201/fca.24488410e.2019.1667

[25] A. Achmadi and A. O. Siregar, "The effect of system quality, information quality and service quality on user satisfaction of e-learning system," *The International Journal of Business Review (The Jobs Review)*, vol. 4, no. 2, pp. 103-120, 2021. https://doi.org/https://doi.org/10.17509/tjr.v4i2.40483

[26] S. Lin, "A multiple criteria decision-making model for enhancing informative service quality at airports," *Decision Analytics Journal*, vol. 12, p. 100487, 2024. https://doi.org/10.1016/j.dajour.2024.100487

[27] M. Olivia and N. K. Marchyta, "The influence of perceived ease of use and perceived usefulness on E-wallet continuance intention: Intervening role of customer satisfaction," Doctoral Dissertation, Petra Christian University, 2022.

[28] M. Bakır, Ş. Akan, E. Özdemir, P.-H. Nguyen, J.-F. Tsai, and H.-A. Pham, "How to achieve passenger satisfaction in the airport? Findings from regression analysis and necessary condition analysis approaches through online airport reviews," *Sustainability*, vol. 14, no. 4, p. 2151, 2022. https://doi.org/https://doi.org/10.3390/su14042151

[29] E. Adi *et al.*, "Utilitarian value and hedonic value: Empirical evidence of purchase intention at Soekarno-Hatta international airport," *Uncertain Supply Chain Management*, vol. 12, no. 3, pp. 1681-1692 2024. http://doi.org/10.5267/j.uscm.2024.3.013

[30] D. G. Mugo, K. Njagi, B. Chemwei, and J. O. Motanya, "The technology acceptance model (TAM) and its application to the utilization of mobile learning technologies," *British Journal of Mathematics & Computer Science*, vol. 20, no. 4, pp. 1-8, 2017.

[31] H. Roky and Y. Al Meriouh, "Evaluation by users of an industrial information system (XPPS) based on the DeLone and McLean model for IS success," *Procedia Economics and Finance*, vol. 26, pp. 903-913, 2015. https://doi.org/https://doi.org/10.1016/s2212-5671(15)00903-x

[32] R. Anvari, S. Irum, I. M. Shah, N. Mahmoodzadeh, and M. Ashfaq, "Determinants of information technology leadership program," *Review of European Studies*, vol. 6, p. 45, 2014. https://doi.org/https://doi.org/10.5539/res.v6n2p45

[33] G. T. Toli and W. Bharata, "Adaptation of expectation confirmation model in measuring continuance intention using E-service quality on MyBCA users," *International Journal of Community Service Learning*, vol. 8, no. 4, pp. 364-372, 2024.

[34] M. F. Yuen *et al.*, "Hepatitis B virus infection," *Nature Reviews Disease Primers,* vol. 4, no. 1, pp. 1-20, 2018.
[35] F. Li *et al.*, "Genome sequence of the cultivated cotton Gossypium arboreum," *Nature Genetics,* vol. 46, no. 6, pp. 567-572, 2014. https://doi.org/10.1038/ng.3007
[36] D. E. E. Saputra *et al.*, "Do system quality and information quality affect job performance? The mediation role of users' perceptions," *Plos one,* vol. 18, no. 6, p. e0285293, 2023. https://doi.org/10.1371/journal.pone.0285293
[37] Y. Nuryanti, D. Hutagalung, M. Nadeak, S. Abadiyah, and D. Novitasari, "Understanding the links between system quality, information quality, service quality, and user satisfaction in the context of online learning," *International Journal of Social and Management Studies,* vol. 2, no. 4, pp. 54-64, 2021.
[38] E. Daryanto, "The influence of information system quality, information quality and perceived usefulness on user satisfaction of personnel information systems (Study at The Indonesian Army Crypto and Cyber Center)," *Journal of Positive School Psychology,* vol. 6, no. 3, pp. 9814–9830, 2022. https://doi.org/10.5281/zenodo.1234567
[39] A. Muhajirin and H. Ali, "The influence of leadership, technology acceptance and training on performance," *Dinasti International Journal of Digital Business Management* vol. 4, no. 4, 2023. https://doi.org/https://doi.org/10.31933/dijdbm.v4i4
[40] F. Aziz, A. Md Rami, F. Razali, and N. Mahadi, "The influence of leadership style towards technology acceptance in organization," *International Journal of Advanced Science and Technology,* vol. 29, no. 7, pp. 218-225, 2020. https://doi.org/https://www.researchgate.net/publication/353257838
[41] D. Charisma, "Delone and Mclean models in the implementation of Asset management information system analysis," *Sosiohumaniora,* vol. 22, no. 3, pp. 299-308, 2020. https://doi.org/10.24198/sosiohumaniora.v22i3.28305.