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UNLOCKING USER SATISFACTION: A DELONE & MCLEAN IS SUCCESS MODEL APPROACH TO IT HELPDESK TICKETING SYSTEM ADOPTION

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ABSTRACT
The IT Helpdesk Ticketing System application is used to submit requests for IT services and handle technical problems related to these services. This research aims to understand the factors that influence user satisfaction with this application, which is triggered by user dissatisfaction. The research method used is qualitative using the DeLone & McLean IS Success Model, which is implemented through the Partial Least Squares Structural Equation Modeling (SEM) framework. The research was conducted on 231 respondents who were surveyed online. The results showed that system quality, service quality, and level of system usage significantly affect user satisfaction. System and service quality contribute positively to user satisfaction, while the level of system usage also has a key role in determining the level of satisfaction. The implications of the findings emphasize the importance of paying attention to these aspects in system development and improvement, while increasing the level of usage to meet the needs and increase user satisfaction more effectively.
Keywords : *IT Helpdesk, User Satisfaction, DeLone & McLean IS Success Model, Level of Use.*

1. Introduction

The development of technology which is increasingly developing day by day makes the use of information systems very common and becomes one of the important needs in the corporate environment. Companies can rely on information systems as one of the abilities to compete with other companies in a competitive market (Girsang et al., 2018). Information systems must also be available whenever needed. In using information systems, companies must ensure that information systems are always accessible and operating properly. Effective use of information systems can be the key for organizations and individuals in achieving company goals (Trieu et al., 2023). The use of information systems in a company can be significantly increased by technological complexity, government influence, and co-creation (Huynh et al., 2023).

Users should be able to easily get help when facing technical problems, so as to minimize unproductive time (Dzihni et al., 2019). From the company side, it must ensure that there are technical resources available to assist users in overcoming technical problems that arise (Al-Hawari & Barham, 2021). One way that companies can provide good and responsive technical support to information system users is by providing IT Help Desk Ticketing System services (Górski & Kamiński, 2018).

Some studies show that IT Help Desk is important to provide user support for technical services and software. IT helpdesk is also not only a service in helping users solve IT problems but is one of the supporters of the overall business process (Sari et al., 2019). The IT helpdesk should be able to understand the problems faced by users in depth about what users should need (Shae et al., 2009). If the IT Helpdesk is not maximally utilized, it will pose a risk of loss of request data or problem data faced by users (Wulandari et al., 2019).

This research uses case study data on a company that has 6 business fields, namely Interior Project, Trading, Distribution, Retail, Export and Manufacturing which has implemented an ERP system and several web-based applications to support the fulfillment of technology needs and can improve information services (Hardianto et al., 2021) which are used by all employees in carrying out company operational activities in order to provide high quality service to all customers (Cassandra et al., 2019).

The company has implemented IT Shared Services, so that all fulfillment and management of technology and information system needs in all Business Units are provided by the IT Division. Information system or application development activities in all lines of business are managed and developed by the IT Division. So that the IT Division can support the effectiveness and alignment of various IT service processes as a whole in the company (Ratnawati et al., 2021). To support business processes in the use of information systems, the IT Division provides IT HelpDesk Ticketing System services in the form of a web-based application portal with a ticketing system that can be accessed online so that it can solve IT problems that are reported manually (Apriyanto et al., 2019).

All users use the IT HelpDesk Ticketing System Application to request IT services and submit complaints from using IT applications or services such as requests for new emails, requests for computer repairs, opening internet access and others. There are 3 departments in the IT Division, namely the Infrastructure and Support Department, the Application Department and the Product Department. Ticketing / requests from employees will be processed by the IT HelpDesk Ticketing System admin and then will be forwarded to the PIC in charge of the IT Department to resolve the ticketing.

The IT Helpdesk Ticketing System application has been operating since 2020, and the number of tickets processed each year continues to increase. However, there are still some problems in its implementation. One of them is a complaint from an application user in the Material Planning Department, who expressed dissatisfaction with the appearance that is considered less simple and user-friendly. The main problem was the slow loading speed, which resulted in delays in entering data. In addition, users from the Inventory Management Department also complained about difficulties in understanding the application's interface, especially when responding to or viewing ticket progress. On the other hand, users from the Sales Department also felt uncomfortable when accessing the application via mobile devices as the display often shifted and interfered with effective use of the application.

Therefore, the author conducted a short survey conducted to 12 users of the IT Helpdesk Ticketing System application. The results of a brief survey conducted to 12 users of the IT HelpDesk Ticketing System application can be described in Fig. 1 to Fig. 3.

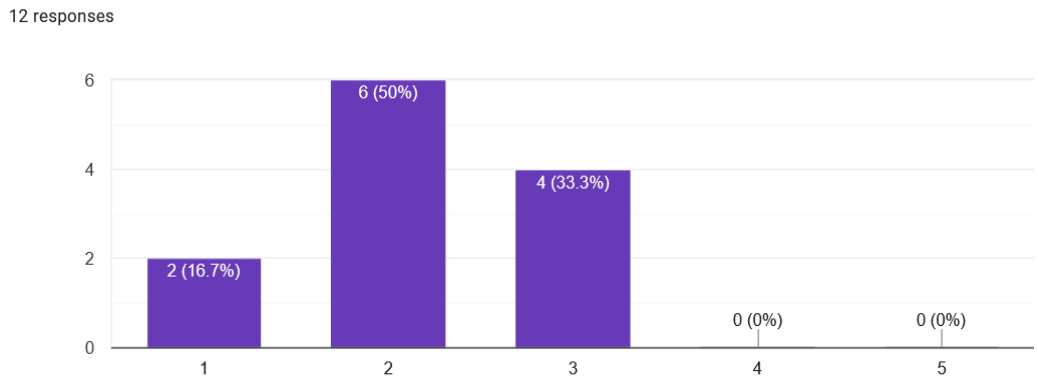

Fig. 1. Short Survey results for the ease of use of the application (1 = Very Difficult, 5 = Very Easy).

Fig. 1 shows the level of ease of use of the IT Helpdesk Ticketing System application by 16.7 percent of users rated "Very Difficult" in its use, while 50 percent rated "Difficult" in its use and 33.3 percent of users rated the IT HelpDesk Ticketing System Application "Quite Easy" in its use. And there are no users who state that the IT HelpDesk Ticketing System Application is "Very Easy" in its use.users.

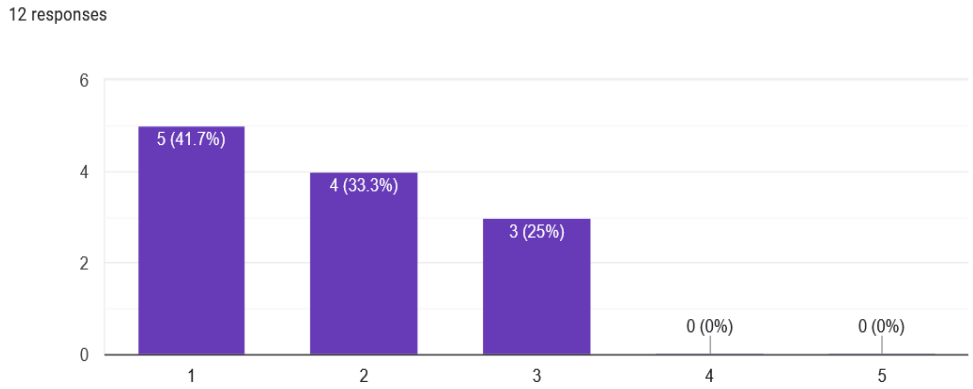

Fig. 2. Short Survey results for the design and appearance of the application (1 = Not very good, 5 = very good).

Fig. 2 shows the value for the design and appearance of the IT Helpdesk Ticketing System application, 41.7 percent of users rated the design and appearance "Very Not Good", while another 33.3 percent rated "Not Good" in design and appearance and 25 percent of users rated "Quite Good" for design and no users stated that the appearance of the IT HelpDesk Ticketing System Application was "Very Good".

Fig. 3. Short Survey results for impressions of the use of the IT HelpDesk Ticketing System Application.

From Figure 1.3, it explains that in using the IT Helpdesk Ticketing System application, users complain about the appearance that is less user friendly, difficulty in navigating and responding to tickets, and slow loading problems, especially on mobile devices, also cause inconvenience and interfere with user productivity. In addition, the large number of inputs and slow response from the application also make it difficult for users to complete work efficiently, resulting in a low level of user satisfaction.

According to (van Velsen et al., 2007), there are three dimensions of quality found to increase satisfaction in the use of applications, namely solution quality, consultation experience, and physical environment. However, these three dimensions cannot explain why the IT Helpdesk Ticketing System application, which should be an application used to assist in solving IT problems, has a low level of satisfaction.

Based on these various problems, it is necessary to analyze the level of user satisfaction as a basis for system development and improvement in order to find problems or user dissatisfaction that are not directly visible in the use of the IT Helpdesk Ticketing System application. Measurement of user satisfaction in this study will adopt the Delone and McLean

(D&M) Information System Success Model according to (DeLone & McLean, 2003; Purwati et al., 2021). This model is used to assess the extent to which an information system can be considered successful, which is considered from the aspect of technological sophistication or quality. In the context of the D&M model, user satisfaction with the system is determined by three main factors, namely system quality, information quality, and service quality.

In previous research that adopted the D&M model to analyze user satisfaction, namely a study conducted by (Nugraheni & Bayastura, 2021) which applied the D&M model to evaluate user satisfaction with an online attendance system which is an application used by all employees and students at a university. The findings of this study indicate a significant positive effect between system quality, service quality and information quality on user satisfaction.

The objective of this study is to determine the factors that influence the level of user satisfaction with the IT Helpdesk Ticketing System application, so that no more obstacles or problems are found in the implementation of the IT Helpdesk Ticketing System application. In addition, from the results of this analysis, it is hoped that the IT Department can make gradual improvements to the application or IT services provided so that the performance targets reported to management are better from year to year and represent an IT service process that is oriented towards the best service for users.

2. Literature Review

Information and communication technology has developed rapidly in business growth. This technology has changed the way customers view information and how to use it (Mukhtar et al., 2020). Today, many companies are starting to realize the importance of intellectual property in developing information systems that can add value to their companies (Mukhtar et al., 2020). Information systems can help companies create and maintain competitive advantages through fast business transactions (Varajão et al., 2022). Information system implementation refers to the application of digital tools, systems and processes to facilitate data management, communication and decision making (Purnamasari et al., 2024).

Information systems are used to obtain correct, coherent, and reportable information in individual and organizational life. Meanwhile, the implementation of information systems in a company can be in the form of infrastructure used to manage and integrate data and information relevant to various aspects of business operations and decisions. This information system includes hardware (such as computers and servers), software (such as business applications and databases), networks, procedures and policies that govern the management and use of information (Susanto & Meiryani, 2019).

IT HelpDesk Ticketing System is one of the information systems used to assist, monitor and manage technical support requests or problems faced by users in a company (Paramesh S.P et al., 2018). Helpdesk is a function or department within an organization that is responsible for providing support and assistance to end users or customers regarding problems or questions related to the products or services provided by the organization.

The main tasks of the helpdesk are to respond to requests for assistance, identify problems, provide solutions or technical assistance, and ensure that user problems or questions are resolved effectively and efficiently. The helpdesk is also responsible for tracking and recording all incoming requests for assistance, as well as reporting and monitoring to improve service quality. Typically, helpdesk uses a ticketing system or reporting system to manage and track help requests from start to finish. Helpdesk can operate through various communication channels, such as telephone, email, ticketing systems, or through self-service portals that allow end users to submit help requests online (Nicholls et al., 2022).

IT Helpdesk can also provide effective and efficient repair services (Wibawa et al., 2019). The IT Helpdesk application can also function as a medium for submitting complaints about IT services (Dzihni et al., 2019).

Based on the explanations that have been given, it can be concluded that the helpdesk is a department that assists users in IT services and whose work and completion are monitored centrally so that IT service needs are properly met and produce the right solutions to manage these services. existing resources.

According to (Kotler Philip & Keller Kevin Lane, 2016), user satisfaction is a feeling of pleasure or disappointment resulting from a comparison of product/service performance against customer expectations. If the performance does not meet expectations, then the user becomes dissatisfied. If the performance meets expectations, then the user is satisfied. If performance exceeds expectations, then the customer is very satisfied. User satisfaction is closely related to the match between expectations and perceptions of services received (results obtained or reality experienced).

The level of user satisfaction is a crucial element in service assessment, reflecting the overall quality and success of the business. Thus, the main focus of management is to increase customer satisfaction, which should be the center point in the development of corporate strategy (Kitsios et al., 2023). Good user satisfaction can encourage users to continue using the same application in the future (Elysa et al., 2023). With the trust that is built, comfort, and satisfaction gained from previous experiences. Thus, creating a positive user experience and meeting expectations can strengthen the user's desire to remain loyal and use the same application in the future.

Meanwhile, user satisfaction in an information system is the response and feedback that users give after using the information system (DeLone & McLean, 2003). User attitude towards information systems is a subjective criterion for how much users like the system used. One strategy to achieve user satisfaction in using information systems is to pay attention to the quality and variety of content presented in the system (Nam et al., 2023). By presenting interesting, relevant content, and ensuring ease of access and use, the user experience can be significantly improved.

(DeLone & McLean, 1992) they proposed a comprehensive model known as the Delone & McLean Information Systems Success Model, which consists of six interrelated categories to measure the success of information systems. These categories include System Quality, which evaluates the processes within the information system itself; Information Quality, which assesses the quality of the output produced by the information system; Usage, which measures the extent to which the output of the information system is used; User Satisfaction, which measures user response and satisfaction with the output of the information system; Individual Impact, which measures the influence of information on individual user behavior; and Organizational Impact, which evaluates the broader impact of information on the organization as a whole.

In 2003 (DeLone & McLean, 2003) introduced an updated information system success model by including Service Quality variables and combining Individual Impact and Organizational Impact into one impact called Net Benefits (Iivari, 2005). In addition, the Usage variable and the Intention to Use variable were presented as alternatives in the DeLone and McLean model in 2003. A more acceptable variable in the context of use is Intention to Use. Figure 4 illustrates the updated Delone & McLean Information Systems Success Model.

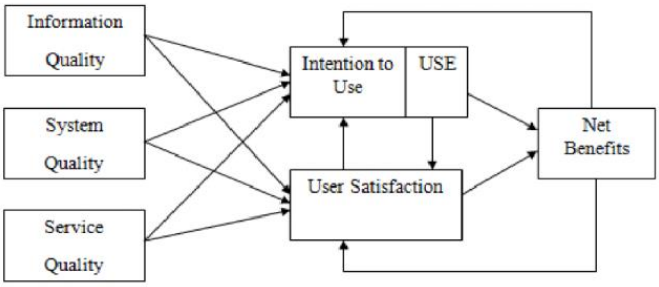

Fig. 4. DeLone & McLean Updated Information System Success Model (2003).

The results of previous studies using the DeLone and McLean model show that system quality, service quality, and information quality play a key role in the successful implementation of various information systems, such as academic systems (Çelik & Ayaz, 2022), electronic health records (Bashiri et al., 2023), and financial systems (Hendri et al., 2022). These factors positively influence the use, user satisfaction, and net benefits of the system (Bashiri et al., 2023 ; Hendri et al., 2022; Alotaibi & Alshahrani, 2022; Ningsih & Kurniawan, 2023).

In previous studies, there were also several researchers who used a combination approach between the DeLone and McLean model and the Unified Theory of Acceptance and Use of Technology (UTAUT) (Falah & Napitupulu, 2023; Puspitarini A & Retnowardhani A, 2022) in measuring the success of information systems. However, in this study, the authors specifically decided not to adopt the UTAUT model. The reason behind this decision is because the research focuses on applications that are mandatory to use to solve IT problems and request IT services, this is in line with previous research (Nugraheni & Bayastura, 2021), which did not use the intention to use variable and the net benefits variable. This is because the attendance system is a mandatory system used by 2019 class students. The research to be conducted is more focused on aspects of the DeLone and McLean model, especially system quality, service quality, and information quality. This conclusion is drawn based on the suitability of the DeLone and McLean model concept with the research environment at hand.

3. Research Methods

3.1. Proposed Model

The research model adopted in this study is to use the DeLone & McLean IS Success Model Updated 2003. The Delone and McLean model is a framework that is often used in measuring Information System (IS) usage satisfaction because of its strong focus on user satisfaction (Nugraheni & Bayastura, 2021). This model identifies user satisfaction as one of several dimensions that are important in assessing the success of an information system. By taking into account aspects such as system quality, information quality, and usage quality, and their impact on user satisfaction (Bashiri et al., 2023), this model provides a comprehensive picture of users' experience with information systems. In addition, the Delone and McLean model is based on strong theories in the field of information systems management, which makes it a valid and tested framework in various contexts (DeLone & McLean, 2003).

In measuring user satisfaction, this model considers not only the technical aspects of information systems, but also the human factors that influence system use, such as quality of use and user satisfaction (Hendri et al., 2022). Therefore, this model helps organizations to better understand and meet the needs of their users (Ningsih & Kurniawan, 2023), as well as identify areas that need to be improved to enhance users' experience with information systems.

Research shows that high user satisfaction is positively correlated with better business performance. By using this model, organizations can identify the relationship between user satisfaction and business results, as well as take appropriate actions to improve user satisfaction (Adrianto & Fajar, 2023). Therefore, the Delone and McLean model provides a strong framework for measuring, understanding, and improving Information System usage satisfaction.. By utilizing this model, this research is expected to provide in-depth insights into the factors that influence user centricity as a whole, allowing researchers to detail and understand the complexity of interactions between relevant variables. The following is the model used by the authors.

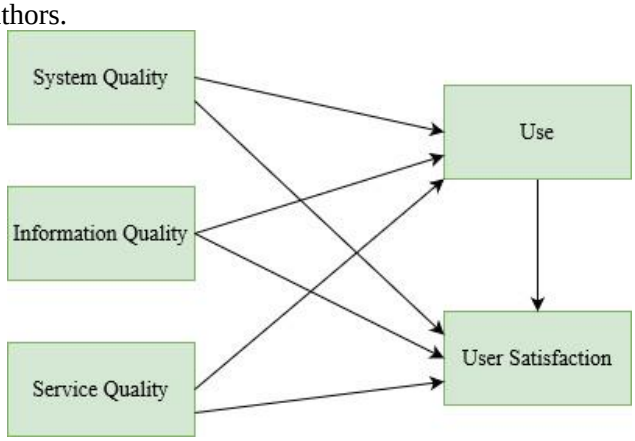

Fig. 5. Proposed Model.

In Figure 5, is the DeLone & McLean IS Success Model Updated model used by the author in this study. In this model, the research variables used are: System Quality, Information

Quality, Service Quality, Use and User Satisfaction. The following are the reasons why researchers use these variables, namely:

1. System Quality
   System quality is a key element in evaluating the IT Helpdesk Ticketing System because it has a direct effect on system performance and success. Aspects such as high technical performance, reliability, and ease of use are very important. A good system must be able to provide an optimal and efficient user experience. System quality is one of the keys to success (Bashiri et al., 2023).
2. Information Quality
   Information quality is crucial because the information generated by this system must be accurate and in accordance with user needs (Adrianto & Fajar, 2023). High information quality helps users in solving problems submitted to the IT Helpdesk Ticketing System application.
3. Service Quality
   Service quality on the IT Helpdesk Ticketing System includes aspects such as responsiveness, speed of service, and ease of communication with the IT team. Good service quality contributes to user satisfaction and more effective system use (Ningsih & Kurniawan, 2023).
4. Use
   The Use variable focuses on system usage and involves monitoring the extent to which XYZ Company employees use the IT Helpdesk Ticketing System application. A high level of use can reflect the level of user satisfaction in using the system (Çelik & Ayaz, 2022) so that it can help users in making IT service requests.
5. User Satisfaction
   The User Satisfaction variable is key in evaluating the effectiveness and success of the IT Helpdesk Ticketing System. This evaluation includes the extent to which the application meets user needs and expectations, including aspects such as user interface and overall user experience.

   However, there are 2 variables that are not used in this paper, namely: Intention to Use variable and Net Benefit variable. The following are the reasons why researchers do not use these variables, namely:

1. The Intention to Use variable is not used in this study because the Intention to Use variable is the user's intention to use the application, depending on whether the user wants to use or not use the application. Meanwhile, the IT Helpdesk Ticketing System Application is an application that must be used by Company employees to make requests for IT services, this causes the intention to use variable to be eliminated because it does not match the behavior of system users. so that the Intention to Use variable is considered irrelevant (Nugraheni & Bayastura, 2021).
2. The Net Benefit variable is not used, because in this study only uses individual impact, namely the employee's perspective on satisfaction in using the IT Helpdesk Ticketing System Application, while the net benefit variable is a combination of individual impact and organizational impact (DeLone & McLean, 2003). Thus, research on Net Benefit Variables is not related to research objectives and problemsResearch hypotheses are temporary answers to problem solutions. The research hypothesis is also a temporary answer to the problem formulation.

   The research hypothesis can be used as a reference for writing research conclusions. The hypothesis that will be used in this study is as follows:

   H1 : System Quality of the IT HelpDesk Ticketing System application has a positive influence on User Satisfaction.

   H2 : Information Quality of the IT HelpDesk Ticketing System application has a positive influence on User Satisfaction.

   H3 : Service Quality of the IT HelpDesk Ticketing System application has a positive influence on User Satisfaction.

H4 : The use of the IT HelpDesk Ticketing System application has a positive influence on user satisfaction.
H5: Information Quality of the IT HelpDesk Ticketing System application has a positive influence on Use.
H6 : System Quality of the IT HelpDesk Ticketing System application has a positive influence on Use.
H7 : Service Quality of the IT HelpDesk Ticketing System application has a positive influence on Use.

3.2 Operationalization of Research Variables

The variables measured in this study are as presented in the research model in Figure 5. In addition, the operation of the research variables was carried out to measure the dimensions and indicators of the variables.

Table 1 - Research Variables and Dimensions

Variable	Indicator	Reference
System Quality	Availability	(Iivari, 2005)
	Flexibility	
	Easy to Use	
	Accessibility	
	Respond Time	
Information Quality	Completeness	DeLone & McLean(2003)
	Relevance	
	Accurate	
	Timeliness	
	Format of Output	
Service Quality	Assurance	DeLone & McLean(2003)
	Empathy	
	Responsiveness	
Use	Daily Used Time	(Iivari, 2005)
	Frequency of Use	
	Reference of use	
User Satisfaction	Efficiency	DeLone & McLean(2003)
	Effectiveness	
	Overall Satisfaction	

3.3 Data Collection Method

Observations were carried out directly in the period May 16, 2023 - May 30, 2023 to obtain accurate supporting data and will be processed and analyzed in this study. The supporting data in question, such as the number of request tickets, the number of problem tickets, the number of active users, and user assessments of the IT Helpdesk Ticketing System application.

The population of this study were all users of the IT Helpdesk Ticketing System application in the May 2023 period totaling 231 users. In this study the authors used a sampling technique using the Census Technique. Census sampling technique (saturated sampling) is a sampling technique when all members of the population are used as samples. The Census technique was chosen because the number of respondents was not too large and was still in the same area. Because data will be obtained from the entire research population. So, the questionnaire will be distributed to 231 users who are the population and become respondents of this study.

Data collection is obtained by distributing questionnaires. The questionnaire consists of 25 indicators in the form of statements that reflect each research variable, namely Information Quality (IQ), System Quality (SQ), Service Quality (SerQ), Use (U) and User Satisfaction (US). Respondents are required to respond to all statements in the questionnaire.

3.4 Data Analysis Method

The data analysis method consists of two models, namely the measurement model, also known as the outer model and the structural model, also known as the inner model.

3.4.1 Measurement Model

The measurement model is a Structural Equation Model (SEM) approach used to analyze the relationship between latent variables and operational variables. There are two forms of measurement model testing, namely validity test and reliability test.

3.4.1.1 Validity Test

The validity test is carried out to determine and ensure that the indicators used can represent the variables in the study. This test consists of convergent validity and discriminant validity (Hair, 2014).

3.4.1.2 Reliability Test

Reliability testing is done by testing Cronbach's Alpha which assumes that all research indicators are mutually reliable (Hair, 2014). The value obtained from the results of this test reflects the reliability of all indicators in the model used. The minimum value in the reliability test is 0.7.

3.4.2 Structural Model

The structural model is an SEM approach used to analyze the pattern of relationships between variables displayed in the model. In testing the structural model (inner model), there are several tests of constructs, namely coefficients of determination (R-Square), T-statistics and the significance value of P-values (Toring et al., 2023).

The processing and analysis of data in this study used the SEM-PLS (Structural Equation Model-Partial Least Square) approach which utilizes SmartPLS 4.0 software In general, the SEM-PLS approach follows a two-step process involving separate assessments of the measurement model and structural model. The first step is to check the validity and reliability of the measurement according to certain criteria related to the specification of the formative and reflective measurement models. If the step proves to be correct, the second step involves assessing the estimation of the structural model.

4. Results and Discussions

In this study, a total of 231 employees participated as respondents, and the questionnaire dissemination period lasted from Jan 31, 2024, to Feb 12, 2024. Data collection was conducted through electronic questionnaires distributed to the respondents. The use of electronic questionnaires provides advantages in terms of flexibility, allowing respondents to fill out the questionnaire online anytime and anywhere they are.

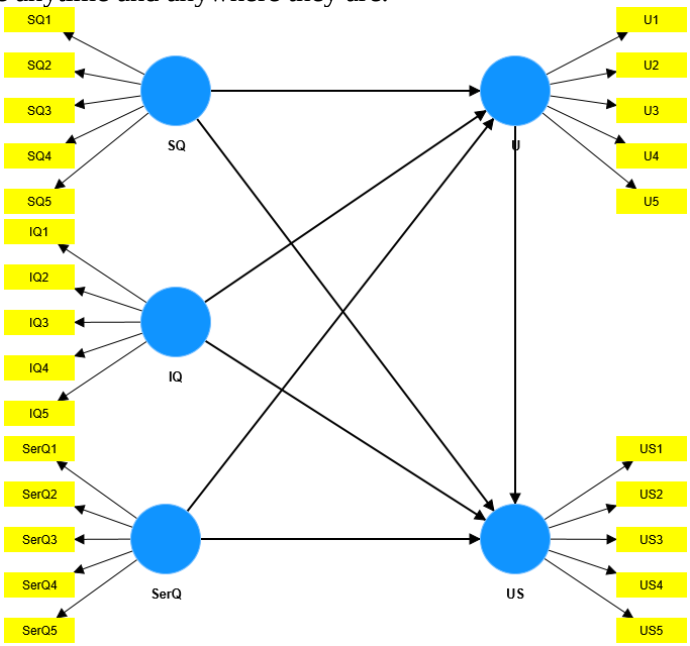

Fig. 6. Research Model in SmartPLS 4.0 Application

4.1 Validity Test

This study uses cross loading, Average Variance Extracted (AVE), and factor loading as validation measures to evaluate the reliability and validity of questionnaire items.

4.1.1 Factor Loadings

Based on the results of the validity test using factor loading, there are several indicators that need to be removed, namely IQ1, IQ2 and SQ2. This is because the value of the indicator is lower than 0.7. so that the three indicators must be removed. So that the results of the validity test using factor loading with all indicators considered valid are presented in Table. 2

Table 2 - Factor Loadings Result

Construct	Item	Factor Loadings	Result
Information Quality	IQ3	0.922	Valid
	IQ4	0.885	Valid
	IQ5	0.769	Valid
System Quality	SQ1	0.894	Valid
	SQ3	0.807	Valid
	SQ4	0.844	Valid
	SQ5	0.833	Valid
Service Quality	SerQ1	0.752	Valid
	SerQ2	0.888	Valid
	SerQ3	0.869	Valid
	SerQ4	0.909	Valid
	SerQ5	0.782	Valid
Use	U1	0.835	Valid
	U2	0.834	Valid
	U3	0.887	Valid
	U4	0.782	Valid
	U5	0.883	Valid
User Satisfaction	US1	0.876	Valid
	US2	0.829	Valid
	US3	0.849	Valid
	US4	0.837	Valid
	US5	0.858	Valid

4.1.2. Average Variance Extracted (AVE)

Each construct with a minimum value of 0.5 is considered valid for Average Variance Extract (AVE). The results of the AVE-based validity test are presented in Table. 3

Table 3 - AVE Result

Construct	AVE	Result
Information Quality	0.741	Valid
System Quality	0.714	Valid
Service Quality	0.71	Valid
Use	0.714	Valid
User Satisfaction	0.723	Valid

4.1.3. Cross Loadings

Indicators reflect only one variable, and cross loadings evaluate how closely a variable is connected to other variables. Variables will be more representative and cross loadings will be considered valid if the indicator value is higher than the indicators on other variables. Table. 4 shows the cross loadings data from this study which are considered valid.

Table. 4 - Cross Loadings Result

	IQ	*SQ*	*SerQ*	U	*US*
IQ3	0.922	0.849	0.616	0.799	0.779
IQ4	0.885	0.756	0.603	0.668	0.756
IQ5	0.769	0.544	0.395	0.557	0.519
SQ1	0.706	0.894	0.621	0.67	0.84
SQ3	0.621	0.807	0.539	0.611	0.655
SQ4	0.901	0.844	0.6	0.736	0.764
SQ5	0.624	0.833	0.68	0.66	0.783
SerQ1	0.546	0.514	0.752	0.726	0.573
SerQ2	0.381	0.539	0.888	0.632	0.73
SerQ3	0.58	0.663	0.869	0.719	0.752

SerQ4	0.427	0.595	0.909	0.635	0.732
SerQ5	0.712	0.705	0.782	0.731	0.822
U1	0.575	0.591	0.738	0.835	0.693
U2	0.597	0.594	0.614	0.834	0.652
U3	0.766	0.745	0.708	0.887	0.837
U4	0.573	0.649	0.735	0.782	0.81
U5	0.814	0.75	0.67	0.883	0.802
US1	0.743	0.773	0.738	0.882	0.876
US2	0.532	0.645	0.866	0.76	0.829
US3	0.715	0.837	0.605	0.714	0.849
US4	0.7	0.865	0.673	0.667	0.83
US5	0.744	0.723	0.794	0.812	0.85

4.2. Reliability Test

After the validity test is complete, the next is the reliability test. This test was conducted to measure how effective or reliable each questionnaire item was in representing the constructs used in the study. Cronbach's alpha was employed in this study's reliability tes

4.2.1 Cronbach's Alpha

The reliability test using Cronbach's alpha is deemed reliable and valid if the value of each construct is greater than 0.7. Table. 6 below shows the Cronbach's alpha test findings, which demonstrate the validity of each questionnaire item utilized in this study.

Table. 5. Cronbach's Alpha Result

Construct	Cronbach's Alpha	Result
Information Quality	0.825	Valid
System Quality	0.866	Valid
Service Quality	0.896	Valid
Use	0.900	Valid
User Satisfaction	0.904	Valid

4.2.2 R Squared or Coefficients of Determination (R^2)

Another thing is R Squared reliability testing. By comprehending the R Squared value of each study construct, it is also possible to see the influence of independent constructs on dependent constructs. Table. 6 below lists the results of the R Squared reliability test for the study's findings.

Table. 6. R Squared Result

Construct	R Square
Use	0.8
User Satisfaction	0.935

In Table. 6 above, the R Squared value for the use variable, which is influenced by the quality of the information, and the services, is 0.8. This indicates that the influence of variables in the research model is 80%, while the influence of variables outside the study is 20%. The R Squared value of 0.935 for the user satisfaction variable, which is impacted by use, the quality of the service, and the system,, can alternatively be translated as the influence of variables in the research model of 93.5% and the influence of factors outside the study of 6.5%.

4.4 Hypothesis Test

The test results from bootstrapping data processing with the Smart PLS application can explain the influence between variables. In hypothesis testing, the p-value must be smaller than the significant level used in the bootstrapping process, namely 0.05, in the p-value test, there are several relationships between variables whose results are significant (p-values <0.05) and insignificant (p-values> 0.05).

Furthermore, the alternative hypothesis is considered supported if the value of the road coefficient (T-statistic) is more than 1.96. Conversely, if the T-statistic value is less than 1.96, the alternative hypothesis is considered unsupported. T-statistic values greater than 1.96 are considered significant, while T-statistic values lower than 1.96 are considered insignificant.

The significance values, both of the p-value and the T-statistic value, indicate that the test results are strong enough to support the conclusions drawn from the hypothesis and are acceptable.

Table 7 - Hypothesis Test Result

Relationship	T Tabel	T Values	P Value	Result
H1- SQ -> US	1,96	11.545	0,000	Accepted
H2- IQ -> US	1,96	0.060	0.842	Rejected
H3- SerQ-> US	1,96	8.303	0,000	Accepted
H4- U -> US	1,96	6.989	0,000	Accepted
H5- SQ -> U	1,96	1.261	0.169	Rejected
H6- IQ-> U	1,96	5.285	0,000	Accepted
H7- SerQ -> U	1,96	9.086	0,000	Accepted

4.4 Discussion

From Table 7, that the variables used in the D&M measurement model of the IT Helpdesk Ticketing System Application show a positive and significant relationship between system quality and User Satisfaction (H1). This finding is consistent with the results of previous studies (Angelina et al., 2019; Adrianto & Fajar, 2023; Alotaibi & Alshahrani, 2022; Falah & Napitupulu, 2023). Therefore, it can be ascertained that when users perceive the IT Helpdesk Ticketing System Application to have good system quality, they tend to rate the system as useful to them. This shows the importance of system quality in increasing user perceptions of the benefits provided by the application.

The results of the analysis did not show a significant relationship between information quality and user satisfaction (H2). This finding is consistent with previous studies that also found no significant impact between information quality and user satisfaction (Çelik & Ayaz, 2022; Ningsih & Kurniawan, 2023; Sundjaja & Wangsa, 2023), but in contrast to findings from other studies (Brahmantyo et al., 2023; Mir et al., 2024; Puspitarini A & Retnowardhani A, 2022). In the context of using IT Helpdesk ticketing system applications, this indicates that users may not consider information quality as a significant factor in determining their level of satisfaction.

Several previous studies have highlighted that service quality plays an important role in increasing user satisfaction (Lutfi, 2023; Brahmantyo et al., 2023; Sundjaja & Wangsa, 2023; Mir et al., 2024; Mater et al., 2024; Ningsih & Kurniawan, 2023). This study was conducted with the aim of investigating the role of service quality as a factor influencing the level of user satisfaction. The analysis results documented in Table 7 show that service quality does have a significant influence on user satisfaction (H3). This finding reinforces the view that service quality substantially affects the level of user satisfaction. Thus, this indicates that users are strongly influenced by the service experience they receive when using the IT Helpdesk Ticketing System application.

The statistical results in Table 7 show that usage has a significant influence on user satisfaction (H4). This finding is consistent with the conclusions of previous studies that also noted a significant impact of usage on perceived user satisfaction (Sundjaja & Wangsa, 2023; Lutfi, 2023), but differs from the findings of previous research (Çelik & Ayaz, 2022) where usage is not considered a factor in user satisfaction because users are forced to use the system. However, in the context of this study, the IT Helpdesk ticketing system application is considered as a tool that helps users in solving their problems, so user satisfaction is strongly influenced by the use of this application.

Based on previous research (Seta et al., 2018; Adrianto & Fajar, 2023; Sundjaja & Wangsa, 2023), system quality has been shown to have a significant impact on system usage. This is contrary to the findings of research conducted by (Angelina et al., 2019; Yessi et al., 2022; Alotaibi & Alshahrani, 2022). The results of this study indicate that perceived system quality has no significant effect on usage (H5). Considering this, it can be concluded that the user behavior factor in using the IT Helpdesk ticketing system application is not significantly influenced by system quality.

Based on the analysis in Table 7, this study confirms that system use is positively influenced by information quality (H6). This finding consistently corroborates the conclusions of previous research (Lutfi, 2023; Sundjaja & Wangsa, 2023; Adrianto & Fajar, 2023), while differing from some previous studies (Brahmantyo et al., 2023, Alotaibi & Alshahrani, 2022; Angelina et al., 2019). This suggests that, taking into account the perceived quality of information, users tend to choose to use the IT Helpdesk Ticketing System application to get the latest updates on the status of solving the problems they report through the platform. In this context, accurate and reliable information becomes a key factor influencing the level of use of such systems, reinforcing the need for timely and relevant updates for users.

Table 7 shows that the research findings confirm that service quality on the IT Helpdesk Ticketing System application has a significant impact on usage (H7), which is in accordance with the findings. This is consistent and supports previous research (Angelina et al., 2019; Çelik & Ayaz, 2022; Brahmantyo et al., 2023, Lutfi, 2023). This states that good service quality in the IT Helpdesk Ticketing System application positively affects the level of use of the application. This shows the importance of quality service in influencing user behavior towards using the IT Helpdesk Ticketing System application.

5. Conclusion

System quality in the IT Helpdesk Ticketing System Application is proven to have a significant influence on user satisfaction. This finding confirms that users are likely to be satisfied with the application if they consider the system to be of good quality. However, there is no significant relationship between information quality and user satisfaction, although information is important. In the context of the IT Helpdesk Ticketing System application, this does not directly affect the level of user satisfaction. On the other hand, application usage was also shown to have a significant impact on user satisfaction. The findings show that users tend to be more satisfied with the application if they feel the system and its services are of quality. In addition, active and effective use of the application also has a major contribution to the level of user satisfaction.

The development of the IT Helpdesk Ticketing System application needs to ensure that the quality of the system and services in the application are well maintained in order to increase user satisfaction. Although information is important, more attention may need to be paid to other aspects that affect user satisfaction more, such as the quality of systems, services, and application usage. Therefore, app developers need to continuously monitor and improve the quality of systems, services, as well as encourage active usage of the app to ensure that user satisfaction is maintained.

From the results of this study, it is also shown that system quality, service quality, and application usage play an important role in increasing user satisfaction with the IT Helpdesk Ticketing System Application. These findings are in line with several previous studies that have highlighted the importance of these factors in the context of user satisfaction. In particular, good system quality has been shown to contribute positively to user perceptions of application benefits. However, not all factors have a significant impact.

The lack of a significant relationship between information quality and user satisfaction indicates that in the context of this application, this factor may be considered less important by users in assessing their satisfaction. Nonetheless, service quality was shown to have a significant influence on user satisfaction, suggesting that users are likely to be more satisfied with the app if they feel the service is of quality. Comparison with previous research shows the consistency of these findings with the results of previous research, adding validity and confidence to the results found in this study. Therefore, this study makes an important contribution in understanding the factors that influence user satisfaction with the IT Helpdesk Ticketing System Application, and confirms the importance of maintaining system and service quality in improving user experience.

For future research, we recommend expanding the application of the DeLone and McLean model by integrating additional variables, especially to improve service quality, system quality, and level of use.

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