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ANALYSIS OF FACTORS AFFECTING SYSTEM USE, USER SATISFACTION, AND NET BENEFITS IN THE TRAVELIN APPLICATION

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ABSTRACT

Soekarno Hatta airport created the Travelin application to make it easier for prospective passengers and passengers to get information. As the Travelin application runs, there are several expectations that are not in accordance with management's wishes, including (1) achievement of target users that do not meet expectations, namely one percent of active users from the number of passengers, (2) there is a trend of decreasing active users in the Travelin application. The number of samples in this study was 200 samples. This study uses the Delone and Mclean model approaches and two research methodologies, namely Structural Equation Model (SEM) and Importance Performance Analysis (IPA). There are six variables in this study including information quality, service quality, system quality, system use, user satisfaction, and net benefits.

KEY WORDS

Delone & Mclean, IPA, SEM, Travelin.

Information technology services are one of the tools companies need to increase work effectiveness. PT Angkasa Pura II is a State-Owned Enterprise (BUMN) company engaged in the business of airport services and other services related to airports. One form of business program that has been implemented by Angkasa Pura II is the "Travel Application". The first time this service was present was in 2016 with the aim of providing services in the form of information needed by consumers while at Soekarno Hatta Airport. As the Travelin application runs, there are several expectations that are not in accordance with management's wishes, including, (1) achievement of target users that do not meet expectations, namely one percent of active users from the number of passengers, (2) there is a trend of decreasing active users in the Travelin application.

At the beginning of developing the Travelin application, PT Angkasa Pura II had a target application user of 1% of the total number of air transportation users. However, as time goes by until 2021, the number of targets desired has not been achieved and has decreased. Based on data owned by PT Angkasa Pura II, from 2020 to 2021 the number of active users of the Travelin application has decreased by 12.84% (6,056 users). In addition, when viewed from the number of users of the Travelin application in 2021, this value has not yet reached the desired target. Based on the Central Bureau of Statistics, in 2021 the total number of air transportation passengers visiting Soekarno Hatta Airport was 7,269,414 passengers while the number of active users of the Travellin application in 2021 was 41,100 users. Based on data on the number of visitors to Soekarno Hatta Airport, the number of users of the Travelin application is only 0.57% of the number of visitors to Soekarno Hatta Airport in 2021. This shows that the number of active Travelin users is still far from the desired target (1% of total air transportation users). Soekarno Hatta Airport). In developing the Travelin application business, it experienced various problems which prompted researchers to examine more deeply regarding these matters. Therefore, the research problem is formulated, as follows.

- How does information quality, service quality, and system quality affect system use and user satisfaction at PT Angkasa Pura II?
- How does the use of the system and user satisfaction affect the net benefits at PT Angkasa Pura II?



- How to formulate management policies in increasing the use of the Travelin application?

CONCEPTUAL FRAMEWORK AND HYPOTHESES DEVELOPMENT

The model starts with six variables and then continues with the development of hypotheses. This study uses the DeLone and McLean models.

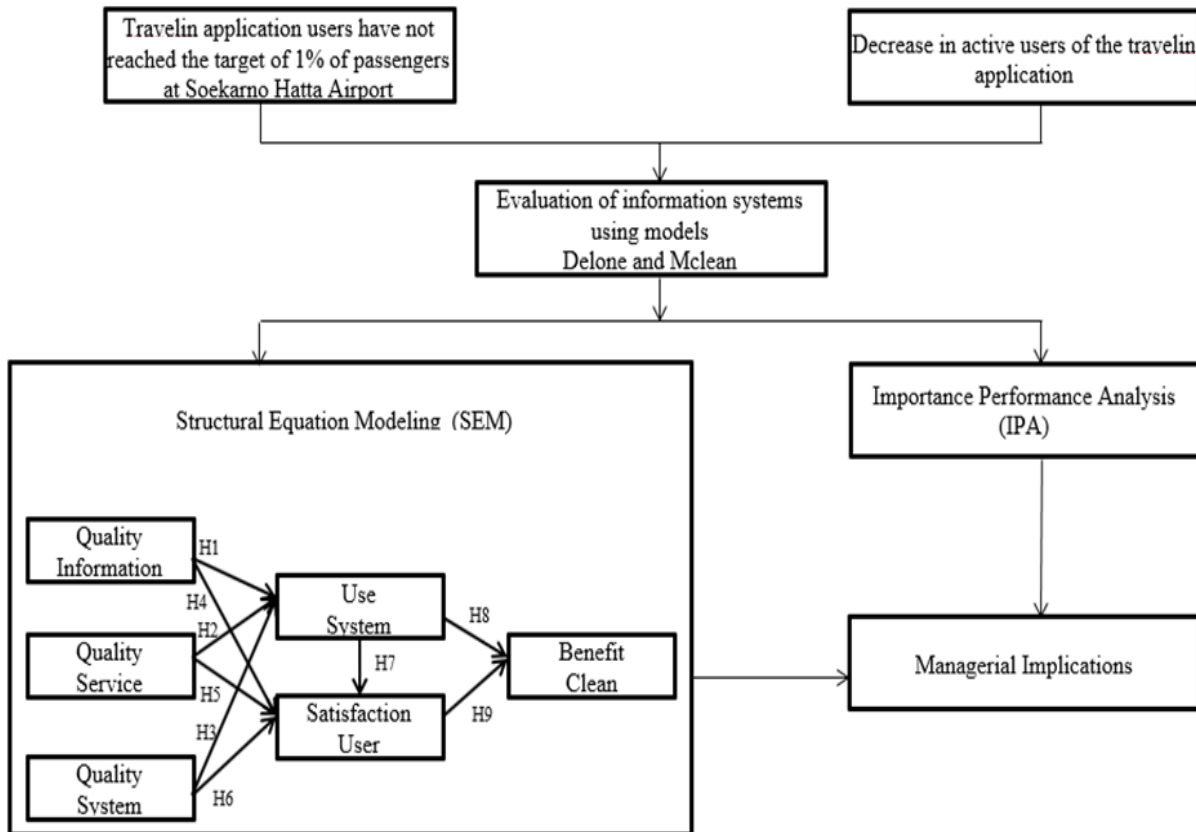


Figure 1 – Conceptual Framework

Based on the framework above, in this study 9 hypotheses were proposed, as follows.

- H1: There is a positive and significant influence on the quality of information on the use of the Travelin application system at PT Angkasan Pura II.
- H2: There is a positive and significant influence of service quality on the use of the Travelin application system at PT Angkasan Pura II.
- H3: There is a positive and significant effect of system quality on the use of the Travelin application system at PT Angkasan Pura II.
- H4: There is a positive and significant influence on the quality of information on the satisfaction of users of the Travelin application at PT Angkasan Pura II.
- H5: There is a positive and significant influence of service quality on the satisfaction of users of the Travelin application at PT Angkasan Pura II.
- H6: There is a positive and significant effect of system quality on user satisfaction of the Travelin application at PT Angkasan Pura II.
- H7: There is a positive and significant effect of using the system on the satisfaction of users of the Travelin application at PT Angkasan Pura II.
- H8: There is a positive and significant effect of using the system on the net benefits of the Travelin application at PT Angkasan Pura II.
- H9: There is a positive and significant influence on user satisfaction on the net benefits of the Travelin application at PT Angkasan Pura II.



METHODS OF RESEARCH

This research was conducted with research objects from users of travel applications based on Soekarno Hatta Airport. This research was conducted from March 2023 to May 2023. The Likert scale used is a 6-level scale, namely, (1) strongly disagree, (2) strongly disagree, (3) disagree, (4) agree, (5) totally agree, (6) totally agree. Each variable will be broken down again into variable indicators so that they can be measured.

The approach used in this research is a quantitative approach. Quantitative research is defined as a research method based on the philosophy of positivism, used to research certain populations or samples, collect data using research instruments, data analysis is quantitative/statistical in nature, with the aim of testing established hypotheses (Sugiyono 2018). In this study using data sources in the form of primary data and secondary data. Primary data in this study were obtained using a questionnaire instrument. Primary data is data that comes from the original or first source (Narimawati 2008).

This study uses a quantitative method where the data to be examined includes the population and sample. There are two types of population, namely unlimited population and limited population (Salim and Syahrums 2012). In this research, the sample was taken using purposive sampling technique. The purposive sampling technique is included in the non-random sampling model where sampling is based on certain considerations (Winarni 2021).

In this study there are six variables (system quality, service quality, information quality, system use, and user satisfaction). there are 32 indicators each representing each variable.

Table 1 – Variable Indicators

No.	Variable	Definition	Source	Indicator	Symbol
1.	System quality	The technical quality of the Travelin application and measuring its success	Livari 2005 ISO 9126	System flexibility System integration Response time Access convenience Language Functionality	KS1 KS2 KS3 KS4 KS5 KS6
2.	Service quality	The quality of the overall support provided by Angkasa Pura II	Delone and Mclean 2003	Reliability Guarantee Empathy Sophisticated	KL1 KL2 KL3 KL4
3.	Information quality	The quality of the Travelin application content and the desired output	Bailey and Pearson 1983 Livari 2005	Punctuality Reliability Completeness Relevance output form contemporary	KI1 KI2 KI3 KI4 KI5 KI6
4.	System use	Travelin application usage rate	Delone and Mclean 2003 Young and Benamati 2000	Nature of use suitability for use Frequency of use Duration of use	PS1 PS2 PS3 PS4
5.	User satisfaction	The level of user satisfaction in using the Travelin application	Delone Kepuasan and Mclean 2003	system Information satisfaction Service satisfaction	KP1 KP2 KP3
6.	Net benefits	The benefits felt by users and the contribution made by the Travelin application to users	Delone and Mclean 2003 Davis 1989	Saving time Provide convenience Productivity Effectiveness	M1 M2 M3 M4

Structural Equation Modeling (SEM) is a statistical modeling technique used to test causal statistical models. SEM technique has cross sectional, linear and general properties. In addition, SEM model analysis is included in factor analysis, path analysis, and regression analysis (Sarwono 2010).

The purpose of the importance performance analysis (IPA) method is to measure the relationship between customer perceptions of expectations and actuals so that it can conclude that improving the quality of services or products that are prioritized for improvement can be known as the Brant and Latu Everentt quadrant analysis (Tjiptono 2011).



In this study, there were 200 respondents with various characteristics of the respondents. There were several questions to find out and group the respondents and are presented in Table 2.

Table 2 – Characteristics of Respondents

No	Characteristics of Respondents		Amount (n)	Percentage (%)
1	Gender	Man	120	63
		Women	80	37
2	Age	> 40	50	25
		31 – 40	41	19
		21 - 30	85	48
		17 - 20	24	7
3	Domicile	JABODETABEK	128	69
		Outside JABODETABEK	72	31
4	Work	Student	26	12
		employees	74	44
		PNS/TNI/POLRI	56	32
		Trader	11	2
		Laborer	0	0
		Not Working	12	2
		Professional	21	8
		Expenses / Month	<= Rp 1.000.000	40
	Rp 1.000.000 - 5.000.000	77	35	
	Rp 5.000.000 - 10.000.000	80	37	
	> Rp 10.000,000	53	19	

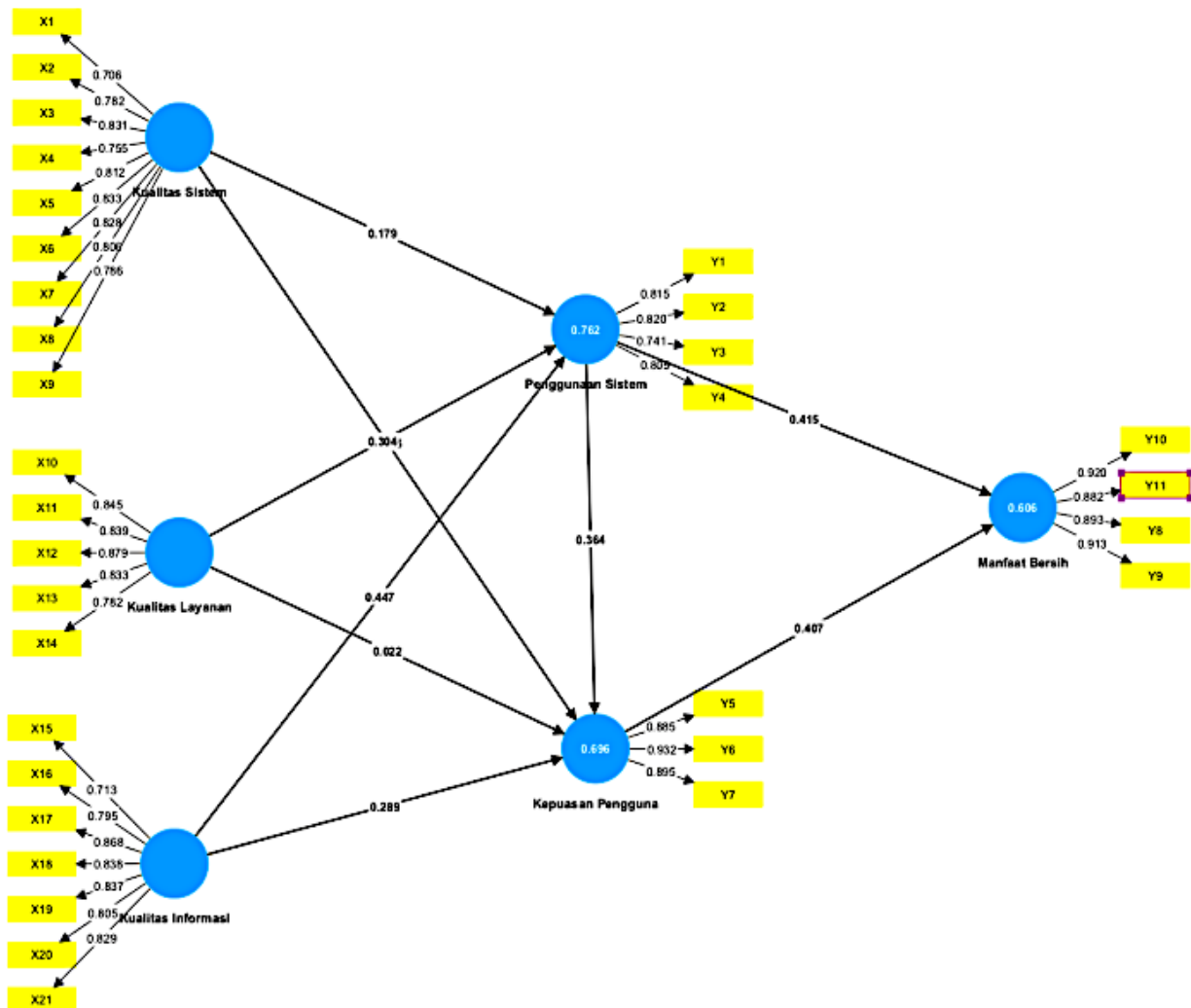


Figure 2 – Research Model



Indicator Validity Testing: 0.5 is the minimum value if in the indicator validity test. In this study, it was informed that all indicators for each variable were appropriate or valid. So there is no need for indicators to be omitted or omitted. Table 3 presents the details of the indicator validity test. Table 3 presents details of the indicator validity test.

Table 3 – Indicator Validity Test

Indicator	Loading Factor	Information	Indicator	Loading Factor	Information
KI 1	0,706	Valid	KS 3	0,868	Valid
KI 2	0,782	Valid	KS 4	0,838	Valid
KI 3	0,831	Valid	KS 5	0,837	Valid
KI 4	0,755	Valid	KS 6	0,805	Valid
KI 5	0,812	Valid	KS 7	0,829	Valid
KI 6	0,833	Valid	PS 1	0,815	Valid
KI 7	0,828	Valid	PS 2	0,820	Valid
KI 8	0,806	Valid	PS 3	0,741	Valid
KI 9	0,786	Valid	PS 4	0,805	Valid
KL 1	0,845	Valid	KP 1	0,885	Valid
KL 2	0,839	Valid	KP 2	0,932	Valid
KL 3	0,879	Valid	KP 3	0,895	Valid
KL 4	0,833	Valid	MB 1	0,920	Valid
KL 5	0,782	Valid	MB 2	0,882	Valid
KS 1	0,713	Valid	MB 3	0,893	Valid
KS 2	0,795	Valid	MB 4	0,913	Valid

Validity and Reliability of Variables Testing. In testing the validity and reliability of variables, it is known that composite reliability also gives results above 0.7, which means that all variables are declared reliable. In addition, all variables are declared valid because they exceed 0.5 of the standard. Table 4 presents the detailed results of the validity and reliability tests for each variable.

Table 4 – Validity and Reliability of Variables Testing

Variable	Composite Reliability	Average Variance Extracted (AVE)
System Quality	0,939	0,631
Service Quality	0,921	0,700
Information Quality	0,932	0,662
System Usage	0,873	0,633
User Satisfaction	0,931	0,818
Net Benefit	0,946	0,814

The r_square results show that the system usage model is 76.2 percent of the variables in the model, while 23.8 percent is estimated to be outside the model, while user satisfaction is illustrated by 69.6 percent in the model, 30.4 percent outside the model. Net benefits have the least description, namely 60.6 percent which is reflected in the model while the remaining 39.4 percent is outside the model.

Hypotheses:

- The influence of information quality on system use (H1).

The relationship between the information quality variable and the system use variable has a positive effect of 0.447 and is significant ($5.473 > 1.956$), thus accepting H1. There is a positive and significant influence on the quality of information on the use of the Travelin application system at PT Angkasan Pura II (hypothesis accepted). This shows that the quality of information has a significant influence on the Travelin application. The data is in accordance with existing research, namely, the quality of information has a significant influence on system use with a t-statistic value of 3,565 (Meilani L, Suroso A.I., and Yuliati L.N. 2020).

- The effect of service quality on system use (H2).

The relationship between the service quality variable and the system use variable has a positive effect of 0.304 and is significant ($3.701 > 1.956$) thus H2 is accepted. There is a positive and significant influence of service quality on the use of the Travelin application



system at PT Angkasan Pura II (hypothesis accepted). Good service quality can increase the use of system users. This is in accordance with previous researchers, where service quality has a positive and significant influence on the use of the system with a t-statistic value of 2,983 (Zulfan Z. 2018).

- Effect of system quality on system use (H3).

The relationship between system quality variables and system use variables has a positive and significant effect of 0.179 ($2.323 > 1.956$), thus H3 is accepted. There is a positive and significant effect of system quality on the use of the Travelin application system at PT Angkasan Pura II (hypothesis accepted). This is consistent with previous research where system quality has a significant influence on system use with a t-statistic value of 2,170 (Meilani L, Suroso A.I., and Yuliati L.N. 2020).

- The effect of information quality on user satisfaction (H4).

The relationship between the variable quality of information and user satisfaction has a positive effect of 0.289 and is significant ($2.587 > 1.956$), thus H4 is accepted. There is a positive and significant effect of the quality of information on the satisfaction of users of the Travelin application at PT Angkasan Pura II (hypothesis accepted). In addition, previous studies have proven that the quality of information has a significant effect on user satisfaction (Utomo T.L. et al. 2017).

- The effect of service quality on user satisfaction (H5).

The relationship between service quality and user satisfaction variables has a positive effect of 0.022 and is significant ($0.214 < 1.956$), thus rejecting H5. There is no significant effect of service quality on Travelin application user satisfaction at PT Angkasan Pura II (hypothesis rejected). This is supported by previous research data where service quality has no significant effect on user satisfaction variables, the influencing factors are caused by a lack of response and the speed of response which still depends on the application vendor (Ramos I. 2021).

- Effect of system quality on user satisfaction (H6).

The relationship between the system quality variable and the user satisfaction variable has a positive and significant effect of 0.215 ($2.303 > 1.956$), thus accepting H6. Based on previous research, it shows that user satisfaction is influenced and can be improved through system quality (Khairrunisa and Yunanto 2017).

- The effect of using the system on user satisfaction (H7).

The relationship between the variable use of the system and the variable user satisfaction has a positive effect of 0.364 and is significant ($3.257 > 1.956$), thus H7 is accepted. This is in line with previous research where system use has a significant influence on user satisfaction, where researchers explain that the higher the frequency of using the system, the more satisfied the user will be (Ramos I. 2021).

- Effect of using the system on net benefits (H8).

The relationship between the use of the system variable and the net benefit variable has a positive effect of 0.415 and is significant ($4.246 > 1.956$), thus H8 is accepted. There is a positive and significant effect of using the system on the net benefits of the Travelin application at PT Angkasan Pura II (hypothesis accepted). Based on these data, it shows that users feel that there are benefits provided by the Travelin application. In addition, this is supported by previous research which shows that there is a significant effect of using the system on net benefits (Jaafreh 2017).

- Effect of user satisfaction on net benefits (H9).

The relationship between user satisfaction variable and net benefit variable has a positive effect of 0.407 and is significant ($4.451 > 1.956$), thus H9 is accepted. There is a positive and significant effect of user satisfaction on the net benefits of the Travelin application at PT Angkasan Pura II (hypothesis accepted). In addition, this is supported by previous research which shows that user satisfaction has a significant effect on net benefits (Pattipeilohy et al. 2021).

Importance Performance Analysis (IPA). In the importance performance analysis, the average level of discrepancy is 15.05 percent or the conformity level is 84.95 percent, which



is in the very good category. And almost all variables have relatively the same level of agreement. Table 4.19 shows the average calculation for all indicators per variable. The average overall satisfaction level is 4.74 out of 6.00. Meanwhile, the average expectation level is 5.58 out of 6.00, this shows that there is still a distance or expectation that the user does not get by 0.84 out of 6.00. Table 5 is presented regarding the details of variables and indicators using importance performance analysis.

Table 5 – Level of Conformity between Satisfaction and Interest

Variable	Attribute	Satisfaction Level (Xi)	Importance Level (Yi)	Conformity Level (Tki)	Satisfaction Level (\bar{X}_i)	Importance Level (\bar{Y}_i)
System Quality	X1	977	1162	84,08	4,89	5,81
	X2	958	1140	84,04	4,79	5,70
	X3	937	1124	83,36	4,69	5,62
	X4	928	1116	83,15	4,64	5,58
	X5	949	1142	83,10	4,75	5,71
	X6	944	1128	83,69	4,72	5,64
	X7	972	1114	87,25	4,86	5,57
	X8	943	1130	83,45	4,72	5,65
	X9	966	1136	85,04	4,83	5,68
Service Quality	X10	946	1123	84,24	4,73	5,62
	X11	937	1124	83,36	4,69	5,62
	X12	948	1130	83,89	4,74	5,65
	X13	952	1124	84,70	4,76	5,62
	X14	945	1091	86,62	4,73	5,46
Information Quality	X15	941	1099	85,62	4,71	5,50
	X16	946	1081	87,51	4,73	5,41
	X17	949	1109	85,57	4,75	5,55
	X18	937	1093	85,73	4,69	5,47
	X19	939	1096	85,68	4,70	5,48
	X20	959	1073	89,38	4,80	5,37
	X21	924	1107	83,47	4,62	5,54

This study has a Cartesian diagram model for the level of satisfaction and the level of interest in figure 2.

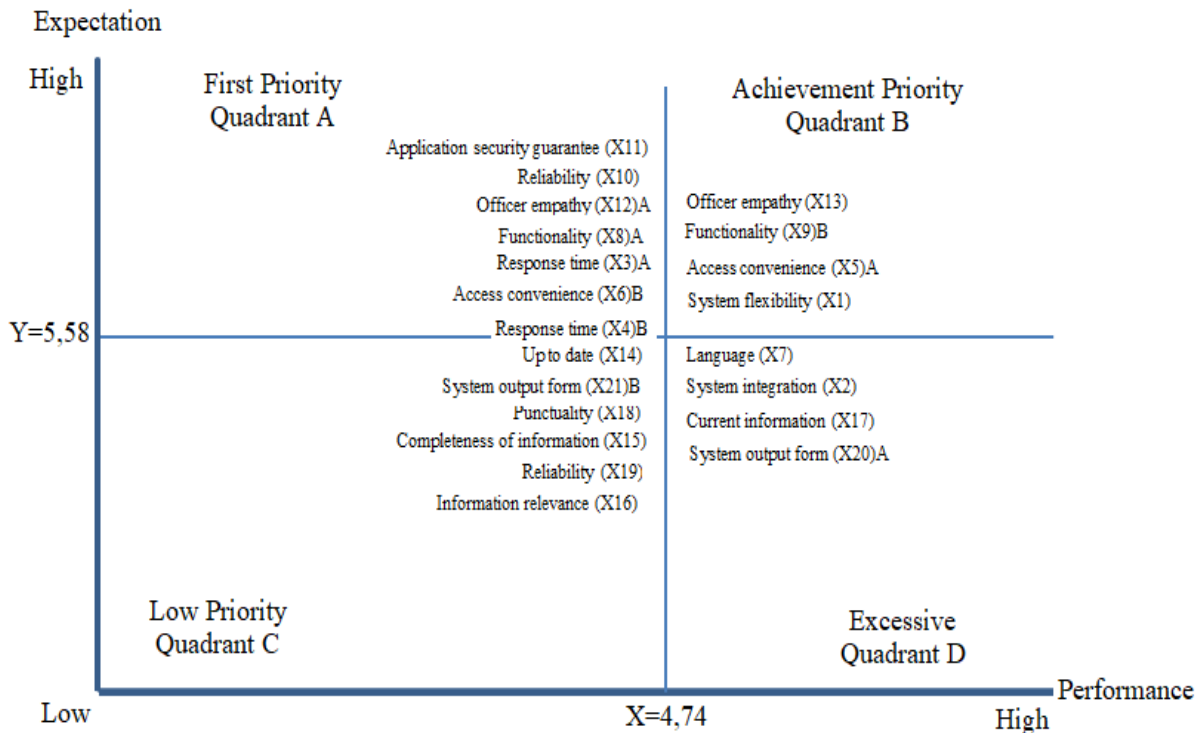


Figure 3 – Cartesian diagram



Based on the results of the position of the Importance Performance Analysis map, the attributes on the Cartesian diagram that must be corrected are those with the first priority, namely in quadrant A, those that enter quadrant A are in table 6:

Table 6 – Quadrant A variable indicators

Variable	Indicator
Application security guarantee	The Travelin application provides guarantees for user data.
Reliability	The Travelin application can understand very well the specific needs of its users.
Officer empathy	<i>Travelin's customer service serves in a friendly manner.</i>
Functionality	This application system has a very helpful FAQ service and contact us feature.
Response time	Access to the Travelin application has a proportional response/loading time.
Access convenience	The quality of the system is always improved every time there is a problem with the system.

There are a number of things that have become the focus for managerial implications so that the decline in users from travel can be overcome, so that the number of active users and downloads is increasing.

Table 7 – Managerial Implications

Variable	Managerial Implications
System Quality	The Travelin application feature, which is only used optimally at the airport, is a weakness in itself, so it is hoped that the Travelin feature will not be maximized when used only at the airport. The scope of application which is only at Soekarno Hatta Airport is a weakness because it is not optimal when used at other airports.
Service Quality	Customer Service is only available at the airport, and there cannot be better communication for operators/customer services that deal specifically with applications.
Information Quality	The applications in the application are also relatively limited from aircraft delays, aircraft departure acceleration.
System Usage	The existing system is relatively heavy and is only used when there is a need related to the airport so there is no reason for people outside the airport to use it so people rarely use the application.
User Satisfaction	Users are relatively satisfied but there is still limited information and the frequency of users is relatively low due to the limitations of the application's features.
Net Benefit	The information contained in the feature is relatively limited so it is not integrated with the interests of the user at the airport.

CONCLUSION

The results of the study show that (1) service quality has no significant effect on user satisfaction; (2) information quality, system quality, and system usage have a significant effect on user satisfaction; (3) information quality, service quality, and system quality have a significant effect on system use; (4) system use and user satisfaction have a significant effect on net benefits.

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