

The Influence of the SIOPSKOM System on the Performance of Airport Operation Personnel Landside, Terminal, and Service Improvement at Lombok International Airport

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Article Info	ABSTRACT
<p>Article History: Submitted: July 22, 2025 Revised : October 1, 2025 Accepted : November 28, 2025</p> <hr/> <p>Keywords: <i>SIOPSKOM, Personnel Performance, Information System, Airport, Operations.</i></p>	<p>This study was conducted at Zainuddin Abdul Madjid International Airport in Lombok to explore the impact of the Operations and Commercial Information System (SIOPSKOM) on the performance of staff within the Airport Operation Landside, Terminal, and Service Improvement (AOLTSI) unit. Through a quantitative approach supported by surveys and field observations, the study reveals a positive correlation between the implementation of SIOPSKOM and improvements in employee performance. Respondents indicated that the system facilitates timely access to information, enhances job efficiency, and supports daily operational tasks more effectively. The findings suggest that SIOPSKOM plays a crucial role in streamlining workflows and promoting a more data-driven work environment. Most staff members acknowledged the system's relevance in accelerating decision-making and improving service delivery to airport users. These results highlight the importance of maintaining and upgrading digital infrastructure in airport operations. To maximize its potential, the study recommends continuous training for personnel and regular system evaluations to ensure responsiveness to operational needs. The integration of such systems must also be aligned with organizational goals to support a culture of performance accountability and service excellence in the broader context of airport management.</p>

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INTRODUCTION

The aviation sector plays a strategic role in supporting public mobility both domestically and internationally. As central hubs for air transportation, airports are required to deliver optimal services to users. One key challenge is ensuring seamless operations and commercial activities through integrated information systems. Zainuddin Abdul Madjid International Airport in Lombok, managed by PT Angkasa Pura Indonesia, continues to improve operational performance through the application of information technology. The airport is divided into several departments, including Operations, Services and Security, Technical, Commercial, Risk and Performance Management, Airport Safety, and Administration. This study specifically involved employees from the Terminal, Landside, and Service Improvement Departments under Airport Operations. To complete tasks accurately and efficiently, the use of an integrated information system is essential. SIOPSKOM (Operations and Commercial Information System) serves as a core platform utilized by the operational, information, and commercial units to support daily activities.

SIOPSKOM is an information system designed by PT Inalix and implemented at airports to support various operational and commercial activities. This system encompasses flight data management, master data preparation, pre-operational and operational activities, and a commercial billing system [1]. This system has been in use for eleven years, starting in 2014 and continuing to this day. With SIOPSKOM, it is hoped that information management processes can be more efficient and accurate.

Zainuddin Abdul Madjid International Airport in Lombok has important units such as the Airport Operations Landside and Terminal Service Improvement Department, which are responsible for smooth operations in the terminal area and on the landside. These units play a crucial role in ensuring optimal service to passengers. However, with the increasing number of passengers and flights, operational management challenges are becoming increasingly complex. One key challenge is ensuring that SIOPSKOM can effectively support staff performance in addressing issues such as data entry errors, flight information delays, and terminal facility management [2].

Obstacles in using the airport's operational and commercial information system (SIOPSKOM), especially during power outages, were noted based on the author's observations during On-the-Job Training (OJT). Smooth airport operations were hampered by this issue, which rendered the system unusable. Prior studies have demonstrated that management's capacity to reconcile system functions with field operational requirements is a critical component of SIOPSKOM deployment efficacy. For instance, it was discovered that technical issues or system outages may make it more difficult to provide passengers with real-time information. This highlights how crucial it is to assess SIOPSKOM implementation in order to make sure the system has a good effect on operational performance [3].

Substantial impact on information unit officers' performance as a result of the successful deployment of the operational and commercial information system (SIOPSKOM) [4]. A study at Adi Soemarmo Boyolali International Airport showed that the performance of information unit officers improved by 0.331 for each unit increase in the effectiveness of SIOPSKOM implementation. The t-test results confirmed a significant influence, with a t-value exceeding the critical value and a significance level below 0.05. The R square value of 0.291 indicates that 29.1% of performance improvements were due to SIOPSKOM, while the remaining 70.9% were influenced by other factors.

Meanwhile, at Zainuddin Abdul Madjid International Airport in Lombok, SIOPSKOM has been introduced to facilitate work processes and enhance staff productivity and performance. However, no prior research has validated its effectiveness in supporting the operational goals of PT Angkasa Pura Indonesia at this location. Therefore, this study aims to analyze the impact of SIOPSKOM on employee performance and to assess how effectively the system supports operational functions at Zainuddin Abdul Madjid International Airport.

Based on the issues identified above, this study focuses on examining the impact of the Operational and Commercial Information System (SIOPSKOM) on the performance of personnel assigned to Airport Operations, Landside, and Terminal Service Improvement at Zainuddin Abdul Madjid Lombok International Airport. Specifically, this research seeks to analyze whether the implementation of SIOPSKOM significantly influences personnel performance and to evaluate the effectiveness of the system in supporting operational efficiency and service improvement within the airport environment. Through this analysis, the study is expected to provide empirical evidence

regarding the role of integrated operational and commercial information systems in enhancing human resource performance in airport management.

METHODS

Research Design

Research is a systematic activity carried out with logical steps to develop and test knowledge, and gain in-depth understanding [5]. In this study, the author used a quantitative research method, which, according to Sugiyono (2017), is a scientific way to obtain data for a specific purpose. This approach is based on scientific characteristics, namely rational, empirical, and systematic. Rational means the method used can be observed by human senses, empirical means observable, and systematic means using certain logical steps. Quantitative methods are based on the philosophy of positivism, used to research specific populations or samples, collect data with instruments, and analyze the data quantitatively/statistically to test predetermined hypotheses [6]. The author chose this method because it is considered the most appropriate for achieving research objectives accurately, based on the scientific method and the philosophy of positivism.

Research Variables

The primary components that become the center of attention are known as research variables. There are two primary categories of variables in this study. The factor that affects other variables is called the independent variable (X), and the variable that is affected is called the dependent variable (Y). According to the author, the performance of the Terminal Service Improvement and Airport Operation Landside staff at Zainuddin Abdul Madjid International Airport in Lombok is the dependent variable (Y), while the Operations and Commercial Information System (SIOPSKOM) is the independent variable (X) that affects it.

Population, Sample, and Research Object

A population is an entire region or group with certain characteristics that researchers determine as research targets, so that the results can be generalized [6]. In this study, the population consisted of all Airport Operation Landside and Terminal Service Improvement employees at Zainuddin Abdul Madjid International Airport, Lombok, with a total of 25 people.

Table 1 AOLTSI Employee Data

No	Position	Number Of People
1.	<i>Airport Operation Landside, Terminal and Services Improvement Department Head</i>	1
2.	<i>Airport Operation Landside and Terminal Officer</i>	3
3.	<i>Airport Operation Landside and Terminal Supervisor</i>	2
4.	<i>Pgs. Airport Operation Landside and Terminal Supervisor</i>	2
5.	<i>Airport Operation Landside and Terminal Staff</i>	1
6.	<i>Information Service Officer</i>	3
7.	<i>Customer Service Officer</i>	7
8.	<i>Terminal Service Officer</i>	5
9.	<i>Landside Service Officer</i>	1
TOTAL		25

A sample is a subset of the population that is selected as a representative sample for the purpose of gathering research data. Purposive sampling, which selects samples according to predetermined standards to guarantee that population features are represented, was employed in this investigation. The census method or saturated sampling, which uses every member of the population as a sample, is used to determine the number of samples [7]. Thus, all 25 personnel of Zainuddin Abdul Madjid Airport Lombok who worked in Terminal Service Improvement and Airport Operation Landside were respondents.

A goal or phenomena that is thoroughly examined in order to gain a comprehensive and in-depth understanding is the object of research [8]. The Operational and Commercial Information System

(SIOPSKOM) and the performance of the Terminal Service Improvement and Airport Operation Landside staff at Zainuddin Abdul Madjid International Airport in Lombok are the subjects of this study.

Data Collection Techniques and Research Instruments

Researchers employed two primary techniques direct observation and questionnaires to get reliable and accurate data. During On-The-Job Training (OJT), direct field observations were made to help researchers better grasp the factors under study in real-world settings. In the meantime, Google Forms was used to distribute questionnaires asking about how the performance of Terminal Service Improvement and Airport Operation Landside staff at Zainuddin Abdul Madjid International Airport in Lombok was affected by the efficiency of the Operations and Commercial Information System (SIOPSKOM).

Research instruments are tools selected to facilitate systematic and efficient data collection [9]. In this study, a questionnaire was used to measure the influence of SIOPSKOM on the performance of Airport Operation Landside and Terminal Service Improvement personnel. The instrument grid was compiled based on operational definitions of variables from theoretical studies, then expanded with relevant indicators and elaborated into specific questions. The indicators for variables X and Y were adapted from research [10] [11].

The variables were measured using a 5-point Likert scale, which ranged from very negative to very positive. Each answer point was multiplied by a predetermined value weight: Strongly Agree (5), Agree (4), Neutral (3), Disagree (2), and Strongly Disagree (1).

After analysing the data, the total score was determined by multiplying the response points by the value weight ($5 \times n$, $4 \times n$, etc.). The formula $X = \text{Highest Likert score} \times \text{number of respondents}$ and $Y = \text{Lowest Likert score} \times \text{number of respondents}$ was used to determine the highest (X) and lowest (Y) scores. The % index calculation was applied for interpretation: $\text{Rumus Indeks\%} = \text{Total Skor} / X \times 100$. For data validation, the index results were grouped into a table of percentage values.

To determine the relationship between variables, the Spearman's Rank Correlation coefficient is used, with the formula [12]:

$$r_{rho} = 1 - \frac{n \sum d^2}{n(n^2 - 1)}$$

The strength of the relationship is determined by the coefficient's value: 0.00–0.25 indicates a very weak relationship, 0.26–0.50 a moderate relationship, and 0.51–0.75 a strong relationship. Correlation is considered present if the significance value is < 0.05 .

Data Analysis Techniques

Validity Testing

Validity testing assesses how well an instrument measures what it is supposed to measure, ensuring the data aligns with the research objectives. This test uses the Pearson Product Moment correlation (r) to test the validity of the questionnaire. If the calculated $r > r$ table with a significance level of 0.05, then the statement item is declared valid.

Reliability Testing

The consistency of measurement results when similar objects are measured again is measured by reliability testing. If a statement item's Cronbach's Alpha value is ≥ 0.6 , it is regarded as dependable [13].

The Normality Test

To determine if the dependent and independent variables in a regression model have a normal distribution, the normality test is utilised. Using SPSS 25, the Kolmogorov-Smirnov analysis was used to detect normality; data were deemed normal if $\text{Sig.} > 0.05$.

The Linearity Test

Finding a linear relationship between the dependent and independent variables in a regression model is the goal of the linearity test. If the linearity significance value is less than 0.05, the relationship is linear; if it is greater than 0.05, it is nonlinear.

The t-test

To ascertain if the independent variable (X) has a separate impact on the dependent variable (Y), the t-test (partial hypothesis test) is employed. The significant value or the comparison of the computed t-value with the t-table serves as the basis for decision-making. The hypothesis is accepted (the independent variable having a significant influence) if the estimated t-value is more than the t-table or the significance value is less than 0.05. The formula $t\text{-table} = (\alpha; n-k)$ is used to calculate the t-table.

Test The coefficient of determination (R^2)

The coefficient of determination (R^2) measures the proportion of variation in the dependent variable (Y) that can be explained by the independent variable (X). The R^2 value ranges between 0 and 1, where 0 means that X does not explain any variation in Y at all, and 1 means that Y is fully explained by X. In this study, R^2 is used to measure the contribution of the variable of quality of aviation security personnel service to passenger satisfaction.

Place and Time of Research

This research was conducted during the author's On-The-Job Training (OJT) at Zainuddin Abdul Madjid International Airport in Lombok for approximately five months, followed by the completion of his final assignment. This final assignment began at PT Angkasa Pura I - Yogyakarta International Airport and was completed at the Indonesian Aviation Polytechnic Curug campus. This research took place from October 2024 to August 2025.

RESULT AND DISCUSSION

Research Result

The information used in this study comes from primary data. Direct observation and the distribution of questionnaires were used to gather this primary data. The objective was to gather information on how the Airport Operation Landside, Terminal, and Service Improvement (AOLTSI) staff at Zainuddin Abdul Madjid International Airport in Lombok performed in relation to the Information and Commercial System (SIOPSKOM) application. Twenty-five Airport Operation Landside, Terminal, and Service Improvement (AOLTSI) staff members at the same airport served as the study's data source. The researcher used the suggested Likert scale formula to analyse the completed questions. The outcomes of the descriptive statistical analysis are as follows:

The results of the validity test for the research variables with a significance level of 5% on 25 respondents are shown as follows:

Validity Test Results

The results of the validity test for the research variables with a significance level of 5% on 25 respondents are shown as follows:

Table 2 Results of Validity Test of Variable X

Statement	R count	R table	Information
X1	0,444	0,396	Valid
X2	0,509	0,396	Valid
X3	0,618	0,396	Valid
X4	0,611	0,396	Valid
X5	0,542	0,396	Valid
X6	0,496	0,396	Valid
X7	0,527	0,396	Valid
X8	0,611	0,396	Valid
X9	0,402	0,396	Valid

The calculated r-value for each statement tested is positive and greater than the table r-value at a significance level of 5%. Therefore, it can be concluded that all statements derived from the Operational and Commercial Information System (SIOPSKOM) variable are valid and can be used for analysis.

Table 3 Results of the Validity Test of Variable Y

Statement	R count	R table	Information
Y1	0,757	0,396	Valid
Y2	0,690	0,396	Valid
Y3	0,614	0,396	Valid
Y4	0,624	0,396	Valid
Y5	0,598	0,396	Valid

At a significance level of 5%, the computed r value for every statement that will be tested is positive and higher than the table r value. Consequently, it can be said that every statement derived from the Terminal Service Improvement and Airport Operation Landside personnel performance factors at Zainuddin Abdul Madjid Lombok International Airport is accurate and suitable for study.

Reliability Test Results

The results of the instrument reliability test on the questionnaire results distributed to 25 people using SPSS are as follows:

Table 4 Results of Validity Test of Variable X

Reliability Statistics	
Cronbach's Alpha	N of Items
.678	9

The table above shows that the aviation security personnel service quality variable has a Cronbach's Alpha value of 0.678. Therefore, it can be concluded that the Operational and Commercial Information System (SIOPSKOM) variable has a reliable answer construct, allowing the research to proceed.

Table 5 Results of Validity Test of Variable Y

Reliability Statistics	
Cronbach's Alpha	N of Items
.661	5

The table above shows that the passenger satisfaction variable has a Cronbach's Alpha value of 0.661. Therefore, it can be concluded that the Airport Operation Landside and Terminal Service Improvement personnel performance variables at Zainuddin Abdul Madjid Lombok International Airport have highly reliable answer constructs, allowing the research to proceed.

Normality Test Results

The basis for decision-making in the normality test is that if the significance value is greater than 0.05, the data is normally distributed. Conversely, if the significance value is less than 0.05, the data is not normally distributed. Based on the results of processing the Kolmogorov-Smirnov normality test data using SPSS, the following output was obtained:

Table 6 Results of the Kolmogorov-Smirnov Normality Test

One-Sample Kolmogorov-Smirnov Test		
		Unstandardized Residual
N		25
Normal Parameters ^{a,b}	Mean	.0000000
	Std. Deviation	1.26305110
Most Extreme Differences	Absolute	.147
	Positive	.078
	Negative	-.147
Test Statistic		.147
Asymp. Sig. (2-tailed)		.174 ^c
a. Test distribution is Normal.		
b. Calculated from data.		
c. Lilliefors Significance Correction.		

According to the test criteria, a significance value greater than 0.05 indicates that the data has a normal distribution. The test results showed a significance of 0.174, indicating that the research data has a normal distribution.

Linearity Test Results

The results of the linearity test of this study using SPSS are as follows:

Table 7 Linearity Test Results

ANOVA Table							
			Sum of Squares	df	Mean Square	F	Sig.
KINERJA	Between	(Combined)	24.423	8	3.053	1.984	.116
PERSONIL	Groups	Linearity	10.753	1	10.753	6.989	.018
AOLTSI *		Deviation	13.670	7	1.953	1.269	.325
SIOPSKOM		from Linearity					
	Within Groups		24.617	16	1.539		
	Total		49.040	24			

The results above show that the deviation value from the linear scale is 0.325, which is greater than 0.05. Therefore, it can be concluded that the Operational and Commercial Information System (SIOPSKOM) variable (X) and the Airport Operation Landside and Terminal Service Improvement personnel performance variables of Zainuddin Abdul Madjid Lombok International Airport (Y) have a significant linear relationship.

T-Test Results

The T test aims to determine whether or not there is a partial (own) influence given by the independent variable (X) on the dependent variable (Y).

Table 8 Results of the T-Test of Variable X Against Y

Coefficients ^a						
		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
Model		B	Std. Error	Beta		
1	(Constant)	11.419	4.847		2.356	.027
	SIOPSKOM	.291	.114	.468	2.542	.018

a. Dependent Variable: KINERJA

The significant value of the SIOPSKOM variable (X) is 0.018, and the computed t value of 2.547, which is higher than the t table value of 2.069, is derived from the analysis findings using SPSS. These findings suggest that the performance of Airport Operation Landside and Terminal Service Improvement staff at Zainuddin Abdul Madjid Lombok International Airport is significantly impacted by the Operation and Commercial System (SIOPSKOM).

Coefficient of Determination

Table 9 Results of the Coefficient of Determination

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.468 ^a	.219	.185	1.290

a. Predictors: (Constant), SIOPSKOM

The table above shows that the Operational and Commercial. Information System (SIOPSKOM) variable contributes 21.9% to the performance variables of Airport Operation Landside and Terminal Service Improvement personnel at Zainuddin Abdul Madjid Lombok International Airport, as indicated

by the Adjusted R Square (R^2) value of 0.219. Meanwhile, the remaining 78.1% is influenced by other factors outside the variables examined in this study.

Instrument Presentation Results

The questionnaire results showed that the average index of the strongly agree category with a percentage value of 80-100%. To determine the strength of the correlation between variables, the Spearman Rank correlation coefficient formula was used. The initial step was to calculate the difference in ranking between variable X (Operation and Commercial Systems/SIOPSKOM) and variable Y (Performance of Airport Operation Landside, Terminal, and Service Improvement Personnel at Zainuddin Abdul Madjid Lombok International Airport) obtained from SPSS.

Table 10 Results of the Correlation Test of Variables X and Y in SPSS

Correlations				
	SIOPSKOM		SIOPSKOM	KINERJA
Spearman's rho		Correlation Coefficient	1.000	.470*
		Sig. (2-tailed)	.	.018
		N	25	25
	KINERJA	Correlation Coefficient	.470*	1.000
		Sig. (2-tailed)	.018	.
		N	25	25

*. Correlation is significant at the 0.05 level (2-tailed).

The results of the correlation test of variables X and Y1 using the SPSS application are 0.470, which means that there is sufficient correlation.

Interpretation

According to the study's findings, Zainuddin Abdul Madjid Lombok International Airport's Airport Operation Landside, Terminal, and Service Improvement (AOLTISI) staff perform significantly better when the Operations and Commercial Information System (SIOPSKOM) is used. Twenty-five respondents who worked at AOLTISI were given questionnaires and observations as part of the data collection process. With a determined r value $> r$ table and a Cronbach's Alpha value > 0.6 , the validity and reliability of the statement items in the questionnaire have been confirmed by validity and reliability tests conducted on all research instruments. The significance value of 0.174 (> 0.05) for the Kolmogorov-Smirnov test indicates that the data utilised are regularly distributed. Additionally, the SIOPSKOM variable and personnel performance have a significantly linear relationship, according to the linearity test results (Sig. Linearity value = 0.018 < 0.05). With a calculated t -value (2.542) higher than the t -table (2.069) and a significant value of 0.018, the t -test indicates that SIOPSKOM has a partial impact on personnel performance. According to the coefficient of determination analysis, SIOPSKOM accounts for 21.9% of the variation in people performance, with other factors outside the research model influencing 78.1% of the variation. With an average index of 90%, respondents also responded well to the SIOPSKOM system's utilisation. Last but not least, the Spearman correlation test results indicate a very strong relationship between the two variables ($r = 0.470$; Sig. = 0.018), supporting the idea that SIOPSKOM deployment is associated with better employee performance. All things considered, these results show that SIOPSKOM is a valuable tool for enhancing the efficacy and efficiency of operational performance in the airport setting.

CONCLUSION

Based on the analysis and discussion of data collected through observation and questionnaires from 25 respondents in the Airport Operation Landside, Terminal, and Service Improvement (AOLTISI) environment, the following conclusions can be drawn:

1. The Effect of SIOPSKOM on Personnel Performance. Based on the t -statistical test, the calculated t -value of 2.542 was greater than the t -table value of 2.069, with a significance value of 0.018 < 0.05 . This indicates a significant effect between the use of the Operations and Commercial Information System (SIOPSKOM) on AOLTISI personnel performance. Therefore, the alternative

hypothesis (Ha) is accepted, meaning that SIOPSKOM significantly contributes to improved employee performance.

2. The Level of Effectiveness of SIOPSKOM's Influence. Based on the coefficient of determination test, the Adjusted R-Square value of 0.219 indicates that 21.9% of the variation in personnel performance is explained by the use of SIOPSKOM, while the remaining 78.1% is influenced by other factors not examined in this study. This shows that even though its contribution is not completely dominant, SIOPSKOM has an important role as a supporting factor for performance that cannot be ignored.

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