



# The Impact Of Management Information Systems And Competencies On Employee Performance At Pt. Perusahaan Listrik Negara (Persero) Up3 Sibolga

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**Abstrak:** *This research investigates the impact of Management Information Systems (MIS) and employee competencies on performance at PT. PLN (Persero) UP3 Sibolga. Using a quantitative descriptive approach, data was collected from 35 permanent employees selected through purposive sampling. Data analysis was performed using multiple linear regression via SPSS. The results demonstrate that both MIS ( $p = 0.022$ ) and competency ( $p = 0.026$ ) have a positive and significant partial impact on employee performance. Simultaneously, these variables contribute 70.2% to performance variability ( $R^2 = 0.702$ ), with a calculated F-value of 37.652 ( $p < 0.001$ ). These findings suggest that optimizing digital infrastructure and continuous competency development are essential to maintaining operational excellence in utility services.*

**Keywords:** Management Information Systems; Competence; Employee Performance

## INTRODUCTION

Employee performance is one of the main indicators used by to assess the success of an organization. Optimal performance can be achieved if the organization is able to create a supportive work environment, and provides an efficient and technology-based work system. One factor that plays an important role in supporting employee performance improvement is an optimal management information system. The management information system provides accurate, timely, and relevant information to all levels of management, enabling quick and accurate decision making. Through an integrated system, information can be accessed in real-time, facilitating monitoring, control, and strategic decision-making. The use of a good management information system can also increase the transparency of work processes, speed up reporting, and minimize errors in data management.

In addition, employee competence is also an important aspect in supporting performance improvement. Competence includes not only technical knowledge and skills, but also work attitude, adaptability to new technologies, and commitment to achieving organizational goals. Employees with high competence will be better prepared to face the dynamics of change and able to complete tasks more effectively and efficiently.

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PT. Perusahaan Listrik Negara (Persero) UP3 Sibolga is one of PLN's operational units under the auspices of the North Sumatra Regional Main Unit. UP3 (Customer Service Implementation Unit) plays an important role in distributing electrical energy, maintaining the distribution network, providing technical and administrative services, and handling customer complaints in the Sibolga area and its surroundings. In carrying out its functions, it relies heavily on the quality of its management information system and the competence of its employees.

As part of a state-owned company that plays a strategic role in providing electricity to the community, PT. Perusahaan Listrik Negara (Persero) UP3 Sibolga continues to innovate and improve service quality. One form of innovation is the use of information technology to support operations and customer service. However, in its implementation, there are still various obstacles that need to be continuously improved.

Based on interviews with permanent employees at PT. Perusahaan Listrik Negara (Persero) UP3 Sibolga, a gap was identified between ideal conditions and reality in the field. There are two main interrelated obstacles that have the potential to hamper employee performance. First, from a technical perspective, the most frequently reported obstacle is internet network disruption. The instability of this network has a direct impact on SIM operations, causing the system to become slow, difficult to access, or even completely unusable at certain times. This clearly hinders the smooth running of work processes that are highly dependent on the system.

Second, in terms of human resources, it was found that the training programs that were held were still not optimal. Although there were internal training programs, the schedule, which was only held every six months, was considered too infrequent to meet the needs of dynamic competency development. Meanwhile, external training faces geographical challenges, as the training providers are located far from PT. Perusahaan Listrik Negara (Persero) UP3 Sibolga, resulting in travel expenses that must be borne by employees before being reimbursed by the company. In addition, the time spent away from main duties while attending training is also a consideration, as it can disrupt the operations of the work unit.

Efforts to overcome these obstacles through online training also encountered obstacles, such as limited and unstable internet networks, as well as a lack of direct interaction between participants and mentors, which impacted the effectiveness of the training. Both issues show that the implementation of a suboptimal management information system and suboptimal employee competencies can impact overall employee performance.

This is in line with previous research on the Influence of Management Information Systems on Employee Performance. According to Ichsan (2020: 128) in his research on 50 samples of employees at the Medan Branch of BPJS Kesehatan. This study concluded that management information systems have a positive and significant effect on employee performance. Meanwhile, the Influence of Competence on the Performance of Employees of the Rokan Hilir Regency DPRD Secretariat conducted by Apridasari (2022:4) in her study of 54 employee samples from the Rokan Hilir Regency DPRD Secretariat proved that competence has a positive and significant effect on employee performance. The results of

these two previous studies show that management information systems and competency can be used as key factors in improving employee performance. With the development of technology and increasingly high demands for public services, organizations are required to continue to adapt and improve their internal quality.

Therefore, evaluation and research at the implementing unit level are important to ensure the success of digital transformation and human resource capacity building at PT. Perusahaan Listrik Negara (Persero) UP3 Sibolga.

However, preliminary interviews at PT. PLN (Persero) UP3 Sibolga revealed a significant gap between technological idealisms and field reality. Technical obstacles such as unstable internet connectivity frequently disrupt MIS operations. Furthermore, the geographical distance from training centers creates logistical challenges for competency development, leading to infrequent training cycles. While previous studies by Ichsani (2020) and Apridasari (2022) have explored similar variables, this study provides a unique perspective by examining how these factors interact within a high-stakes utility provider in a geographically challenging area. Therefore, this research aims to analyze the impact of MIS and competence on employee performance specifically within the context of PT. PLN (Persero) UP3 Sibolga.

## **RESEARCH METHOD**

Andi (2022:1) explains that a research method is an effort to discover, develop, and test the truth of knowledge using scientific methods. This study uses a quantitative method with a descriptive approach.

Types of data: In this study, the author uses subject data (self-report data) in the form of opinions, attitudes, experiences, or characteristics of a person or group of people who are the subjects of the study (respondents) and documentary data. Data sources: The data sources in this study use primary data obtained directly from the respondents who are the targets of the study. Primary data can be in the form of individuals/groups of people (subjects), observations of objects (physical) events/activities, and test results.

The data collection techniques used in this study are as follows: 1) Observation, used to obtain data by requiring researchers to go to the field to observe things related to space, place, actors, activities, time, purpose, and feelings. 2) Interviews, conducted through conversations, both formal and informal. 3) Questionnaires, used to obtain data by submitting a list of questions/statements to respondents.

The data analysis technique in this study is adapted to quantitative research methods, emphasizing hypothesis testing through statistical analysis. The data collected or obtained from the field must be normally distributed so that it can be used as a tool for further analysis (Wiratna 2018:96). The data analysis techniques used in this research are: classical assumption test, determination test, simple linear regression test, and hypothesis test.

The population of this study consists of 91 permanent employees at PT. PLN (Persero) UP3 Sibolga. A sample of 35 respondents was selected using a purposive sampling technique. The selection criteria focused on employees who actively utilize the company's internal Management Information Systems in their daily operations to ensure the validity of

the data regarding system impact. Data were analyzed using classical assumption tests, multiple linear regression, and hypothesis testing (t-test and F-test).

## RESULTS AND DISCUSSION

### RESULTS

#### Research Instrument Test

#### Management Information System Variable Validity Test

**Table 1. Results of the Validity Test of Variable X1 (Management Information System)**

No item	Calculated r	r Table 5%	Result
1	0.862	0.338	Valid
2	0.890	0.338	Valid
3	0.848	0.338	Valid
4	0.640	0.338	Valid
5	0.847	0.338	Valid
6	0.814	0.338	Valid
7	0.806	0.338	Valid
8	0.795	0.338	Valid
9	0.842	0.338	Valid
10	0.787	0.338	Valid

Based on the table above, it can be concluded that all items in the questionnaire for variable X1 (Management Information System) are valid and therefore meet the requirements as a research instrument because the calculated  $r >$  table  $r$  with the highest value being 0.890 and the lowest value being 0.640.

#### Competency Validity

**Table 2. Results of the Validity Test for Variable X2 (Competency)**

Item No.	Calculated r	Table r5%	Results
1	0.827	0.338	Valid
2	0.683	0.338	Valid
3	0.874	0.338	Valid
4	0.795	0.338	Valid
5	0.734	0.338	Valid
6	0.703	0.338	Valid
7	0.855	0.338	Valid
8	0.664	0.338	Valid
9	0.706	0.338	Valid
10	0.811	0.338	Valid

Based on the table above, it can be concluded that all items in the X2 variable (Competence) questionnaire are valid and therefore meet the requirements as a research

instrument because the calculated  $r >$  table  $r$  with the highest value being 0.874 and the lowest value being 0.664.

### Validity Test of Performance Variable

**Table 3. Results of the Validity Test for Variable Y (Performance)**

Item No.	Calculated r	Table r 5%	Result
1	0.554	0.338	Valid
2	0.832	0.338	Valid
3	0.795	0.338	Valid
4	0.819	0.338	Valid
5	0.770	0.338	Valid
6	0.841	0.338	Valid
7	0.868	0.338	Valid
8	0.882	0.338	Valid
9	0.799	0.338	Valid
10	0.785	0.338	Valid

Based on the table above, it can be concluded that all items in the questionnaire for variable Y (Performance) are valid and therefore meet the requirements as a research instrument because the calculated  $r >$  table  $r$  with the highest value being 0.882 and the lowest value being 0.554.

### Data Normality Test

In the data normality test using the Kolmogorov-Smirnov Test, the data is considered normal if the significance is  $> 0.05$ . Based on the results of data processing using SPSS version 25 by the researcher, the results of the data normality test in this study are as follows. Therefore, it can be concluded that the data is normally distributed because  $0.15 > 0.05$ .

**Table 4. Statistics of the One-Sample Kolmogorov-Smirnov Test Results**

<i>One-Sample Kolmogorov-Smirnov Test</i>		
		Unstandardized Residual
N		35
Normal Parameters <sup>a, b</sup>	Mean	.000000
	Std. Deviation	2.36684282
Most Extreme Differences	Absolute	.167
	Positive	.142
	Negative	-.167
Test Statistic		.167
Asymp. Sig. (2-tailed) <sup>c</sup>		.0150

### Determination Coefficient Test

Based on the data analysis results in this study, the following table can be seen:

**Table 5. Coefficient of Determination Test**

Model Summary <sup>b</sup>
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Model	R	R Square	Adjusted R-Square	Standard Error of the Estimate
1	.838 <sup>a</sup>	.702	.683	2.440
a. Predictors: (Constant), Competence, Management Information System				
b. Dependent Variable: Performance				

In Table 5, the results of the analysis of the coefficient of determination above show that R square is 0.702. Based on the analysis results, which is 0.702. Based on the analysis results, namely  $0.702 \times 100\%$  is 70.2. Thus, variables X1 and X2 (Management Information System and Competence) can have an impact on the performance variable of 70.2%. The remaining 29.8% is explained by other variables not mentioned in this study.

### Multiple Linear Regression Analysis

**Table 6. Multiple Linear Regression Analysis**

Coefficients <sup>a</sup>								
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics		
	B	Std. Error	Beta			Tolerance	VIF	
1	(Constant)	5.359	4.434		1,209	.236		
	Management Information Systems	.452	.187	.442	2,410	.022	.277	3,609
	Competency	.419	.179	.429	2,339	.026	.277	3,609
a. Dependent Variable: Performance								

$$Y = 5.359 + 0.452 X_1 + 0.419 X_2$$

- The constant is 5.359, which indicates that if X1 and X2 are equal to 0, the value of Y remains at 5.359
- Based on variable X1, the regression test results show that variable X1 has a positive regression coefficient with a value of  $b = 0.452$ . This means that, if there is an increase in the value of variable X1 by 1 point, there will also be an increase in variable Y by 0.452.
- Based on variable X2, the regression test results show that variable X2 has a positive regression coefficient with a value of  $b = 0.419$ . This means that if there is an increase in the value of variable X2 by 1 point, there will also be an increase in variable Y by 0.419.

### Hypothesis Testing

**Table 7. t-**

Coefficients <sup>a</sup>						
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
1	(Constant)	5.359	4.434		1,209	.236
	Management Information Systems	.452	.187	.442	2,410	.022
	Competency	.419	.179	.429	2,339	.026

a. Dependent Variable: Performance

Based on the t-test presented in Table 4.20, the regression coefficient (B) for the Management Information System (X1) variable is 0.452 with a standard error of 0.187. Based on the regression t-test formula, namely  $t = \frac{(b-\beta)}{s_b}$ , assuming  $\beta = 0$ , the t-value is obtained from  $\frac{0,452}{0,187} = 2.410$ . The significance value obtained is 0.022, which is smaller than the significance level of 0.05. The t-table value is determined with a degree of freedom  $df = n-k = 35-3 = 32$  at a significance level of 0.05 (two-tailed test), so that  $t\text{-table} = 2.037$ . Because  $t$  calculated ( $2.410$ )  $>$   $t$  table ( $2.037$ ),  $H_0$  is rejected and  $H_a$  is accepted, which means that the Management Information System variable partially has a significant effect on the Employee Performance variable.

Furthermore, for the Competence variable (X2), the regression coefficient (B) value obtained is 0.419 with a standard error of 0.179. Based on the t-test calculation, the t-value obtained is from the  $\frac{0,419}{0,179} = 2.339$ . The significance value obtained is 0.026, which is also smaller than the significance level of 0.05. The t-table value is determined with a degree of freedom  $df = n-k = 35-3 = 32$  at a significance level of 0.05 (two-tailed test), so that  $t\text{-table} = 2.037$ . Because  $t$  calculated ( $2.339$ )  $>$   $t$  table ( $2.037$ ),  $H_0$  is rejected and  $H_a$  is accepted, which means that the Competence variable partially has a significant impact on the Employee Performance variable.

Thus, both independent variables, namely Management Information System (X1) and Competence (X2), have a significant impact on Employee Performance individually, according to the testing criteria stated in , which states that if the significance value is  $<$  0.05, then the regression coefficient is statistically significant.

**Table 8. F Test**

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	448.220	2	224,110	37,652	<,000
	Residual	190,466	32	5,952		
	Total	638,686	34			
a. Dependent Variable: Performance						
b. Predictors: (Constant), Competence, Management Information System						

The table above is used as evidence by comparing the calculated F value with the F table at a 5% level and degree of freedom, so that the independent variables together have a simultaneous effect on the dependent variable, with the following equation:

1. If  $F$  calculated  $>$   $F$  table, then  $H_0$  is rejected and  $H_a$  is accepted
2. If  $F$  calculated  $<$   $F$  table, then  $H_0$  is accepted and  $H_a$  is rejected

The F table value is determined based on the degrees of freedom (df), namely  $df_1 = k-1$  and  $df_2 = n-k$ , where  $k$  is the number of variables and  $n$  is the number of samples. In this study, the number of variables ( $k$ ) = 3, so  $df_1 = 3-1 = 2$  and  $df_2 = 35-3 = 32$ . With a significance level of 0.05, the  $F$  table = 3.29. Therefore, the result is that the calculated F value of 37.652  $>$  the F table value of 3.29. Thus,  $H_0$  is rejected and  $H_a$  is accepted. Considering the significance level, i.e.,  $0.000 <$  0.05,  $H_0$  is rejected and  $H_a$  is accepted. Therefore, the result is

that X1 (Management Information System) and X2 (Competence) have a simultaneous effect on Y (Performance).

## DISCUSSION

Based on the results of data analysis and hypothesis testing that has been carried out, the following is an in-depth discussion of the influence of Management Information Systems (MIS) and Competence on Employee Performance at PT. PLN (Persero) UP3 Sibolga.

### **The Effect of Management Information Systems on Employee Performance**

The positive impact of MIS on performance (0.452,  $p = 0.022$ ) confirms that technology acts as a critical enabler at UP3 Sibolga. This finding aligns with the field observation that real-time data access minimizes human error in electricity distribution management. However, the regression constant of 5.359 suggests that even without optimal MIS and Competence, there is a baseline level of performance sustained by other factors, possibly organizational culture or standard operating procedures (SOP).

These findings indicate that any improvement in the quality and effectiveness of SIM will be followed by a tangible increase in employee performance. At PT. PLN (Persero) UP3 Sibolga, accurate and timely data access is key. Employees supported by a reliable information system can minimize *human* error and accelerate the operational decision-making process. Theoretically, this is in line with the view that information technology functions as *an enabler* that transforms inputs into outputs more productively. The perceptions of employees in the high category indicate that the digital infrastructure at UP3 Sibolga has been able to facilitate daily task requirements well.

### **The Effect of Competence on Employee Performance**

Furthermore, the significant role of competency (0.419,  $p = 0.026$ ) highlights that technical expertise must be paired with adaptive skills to overcome the aforementioned internet stability issues. The high  $R^2$  of 70.2% indicates that the synergy between a reliable system and a competent workforce is the primary driver of organizational success in this unit.

Improving competencies directly strengthens employees' ability to complete tasks more effectively and efficiently. In a dynamic work environment such as PLN, competency is not limited to technical aspects (*hard skills*), but also includes adaptive and creative thinking in facing challenges in the field. The results of this study confirm that investment in human resource development through continuous training is a determining factor that directly contributes to the achievement of overall organizational performance targets.

### **The Simultaneous Effect of SIM and Competency on Employee Performance**

Simultaneously, both independent variables (SIM and Competence) were able to explain 70.2% of the variation in employee performance ( $R^2 = 0.702$ ). This figure indicates a very strong regression model, with the remaining 29.8% being influenced by other variables not examined in this study.

These results confirm the synergy between technological and human aspects. Digital transformation at PT. PLN (Persero) UP3 Sibolga will not reach its maximum potential if it

only focuses on modernizing technological infrastructure without being accompanied by the development of competent human resources. Conversely, competent employees require the support of a *reliable* and *user-friendly* system to optimize their expertise. The integration of both creates an integrated work environment, providing superior competitiveness for the organization in facing the complexities of contemporary business challenges.

### **Gap Analysis and Development Recommendations**

Although employee perceptions are generally high, this study found that understanding of the work system is still moderate. This indicates a strategic gap that needs to be optimized.

There are indications that even though the system is available and employees have basic competencies, the integration between "how the system works" and "daily work procedures" still requires further synchronization. Therefore, management needs to:

1. **Intensive Socialization:** Providing in-depth understanding of the system workflow to prevent task redundancy.
2. **Adaptive Training:** A training program that is not only technical in nature, but also shapes a mindset oriented towards digital solutions.
3. **IT Unit Support:** Ensuring that the information technology unit responds responsively to challenges in the field to maintain system sustainability.

In conclusion, the performance improvement at PT. PLN (Persero) UP3 Sibolga is the result of synergistic involvement between pro-technology management policies and the readiness of employees to continue to develop.

### **CONCLUSION**

This study concludes that Management Information Systems and Competence significantly influence employee performance at PT. PLN (Persero) UP3 Sibolga, both partially and simultaneously. MIS contributes to performance through improved data accuracy and reporting speed, while competence empowers employees to execute tasks efficiently despite technical challenges. The integrated model explains 70.2% of performance variance, reinforcing the necessity for management to invest in stable digital infrastructure and localized, adaptive training programs to maintain high service standards.

Similarly, competency variables, which include skills, motivation, experience, and intellectual ability, have a significant impact with a positive regression coefficient value of 0.419 and a significance level of 0.026. This concludes that improving employee competency directly strengthens individuals' ability to complete tasks effectively and efficiently, thereby impacting overall performance.

Simultaneously, these two variables together explain 70.2% of the variation in employee performance at PT. Perusahaan Listrik Negara (Persero) UP3 Sibolga, as indicated by the coefficient of determination (*R Square*) value of 0.702. The regression model used is reliable because it has met the validity and reliability tests, data normality, freedom from multicollinearity, and autocorrelation, so that the research results can be used as a valid basis for performance evaluation and organizational policy development.

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