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## Analysis of the Relationship Between Information Technology, Integrated Management Information Systems, and Employee Performance at STTN Lampung

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### ABSTRACT

Information Technology (IT) and Integrated Management Information System (IMIS) are powerful tools for enhancing employee performance within an institution, necessitating research in this area. This study aims to achieve three primary objectives: 1) to identify the influence of Information Technology on STTN Lampung, 2) to assess the impact of IMIS on the performance of STTN Lampung staff, and 3) to determine the combined effect of IT and IMIS implementation on overall employee performance at STTN Lampung. The research was conducted at STTN Lampung and involved employees proficient in computer operations and knowledgeable in IT. Additionally, the study focused on three main variables: IT, IMIS, and employee performance. Primary data were collected through questionnaires from 84 respondents, selected using the Slovin formula and purposive sampling technique. The analysis revealed positive and significant effects of both IT and IMIS on employee performance at STTN Lampung.

## INTRODUCTION

In the context of organizational performance, three primary factors are determinative: organizational structure, human resources, and technology. Among these, human resources (HR) are the most crucial due to the essential role that individuals play in executing all organizational processes and functions. Humans, with their diverse characteristics and personalities, such as abilities, skills, and workplace attitudes, make HR the most challenging factor to manage compared to organizational structure and technology (Ambarwati 2021).

Human resources are vital assets in any organization, playing a critical role in achieving success. The quality of work within an institution is closely related to the quality of its HR. Therefore, enhancing the quality of HR is essential and must be planned and implemented continuously. However, this enhancement cannot be achieved if HR management is not effectively executed, which in turn fails to support efforts to improve HR quality (Setiyati and Hikmawati 2019).

One of the key strategies for improving HR management effectiveness is through the implementation of a Management Information System (MIS). At STTN Lampung, MIS is a comprehensive academic management system widely applied across various higher education institutions. The MIS at STTN Lampung comprises five main subsystems: Academic Information System, Financial Information System, Personnel Information System, Infrastructure Information System, and Student Affairs Information System. These subsystems are integrated and interconnected, forming a cohesive management information system.

The presence of this integrated MIS is expected to facilitate all academic and non-academic processes, making them more efficient and faster for students, staff, faculty, and other related parties. Effective MIS implementation will streamline various operational processes on campus, support better decision-making, and enhance the overall quality of services and institutional performance (Listiani 2021).

## METHODS

This research was conducted at Sekolah Tinggi Teknologi Nusantara (STTN) Lampung, commencing on June 15, 2023, and concluding on June 25, 2023. The study employed an associative method, aimed at identifying the influence or relationship between two or more variables. The associative method was chosen due to its superior ability to test and build theories compared to descriptive and comparative methods, particularly in terms of its capability to explain, predict, and control phenomena.

For data analysis, this study utilized SPSS version 17 software. The use of SPSS facilitates the efficient and accurate analysis of complex data. The sampling technique employed was purposive sampling, allowing for the intentional selection of samples based on specific characteristics relevant to the research objectives. A total sample of 84 respondents was determined using the Slovin formula, ensuring an adequate sample size for statistical analysis (Anugraheni, Izzah, and Hadi 2023).

To measure respondents' responses, the study employed a 4-point Likert scale (Joshi et al. 2015). This scale ranged from 1 (very poor) to 4 (very good), enabling the structured measurement of various levels of perception and opinion. The research instruments used included tests of normality, validity, and reliability. The normality test was used to ensure that the collected data followed a normal distribution, while the validity and reliability tests were employed to ensure that the instruments accurately measured the intended variables and were consistent in their measurements.

Thus, this research was designed to provide in-depth insights into the relationships between the variables under study, while also ensuring that the results obtained are reliable and valid. Consequently, the findings can significantly contribute to the development of theories within the relevant field.

## RESULTS AND DISCUSSION

### Validity and Reliability Tests

The validation test is a crucial stage in research to ensure that the measuring instrument used is indeed suitable and appropriate in measuring the intended object, also known as the construct. Validity analysis aims to identify whether a construct has a single dimension (unidimensionality) or whether the indicators used in the construct can confirm the existence of the construct as a whole.

In this context, measurement items are considered valid if there is a statistically significant relationship between the item scores and their total scores, with a correlation coefficient greater than 0.30 indicating a strong positive relationship. Validity is a crucial aspect in ensuring that the

instrument used can be trusted and provides accurate results (Taherdoost 2016).

Meanwhile, the reliability test aims to evaluate the reliability or consistency of the statement items within the instrument. Reliability is important because we want to ensure that the instrument used yields consistent results when measuring the same object more than once (Heale and Twycross 2015).

In practice, an instrument's items are considered reliable if their reliability value exceeds the 5% critical value (r table), indicating that the instrument can be relied upon to measure the same object consistently. Thus, the reliability test becomes an important step in validating that the instrument used can provide consistent and trustworthy results in the relevant research context.

Table 1. Recapitulation of Validity and Reliability Test Results

No	Variable	Item	Validity		Reliability	
			Correlation Coefficient	Description	Alpha Cronchbach	Description
1	Information Technology	X.1.1	0,60	Valid	0,776	Reliable
		X.1.2	0,75	Valid		
		X.1.3	0,72	Valid		
		X.1.4	0,71	Valid		
		X.1.5	0,70	Valid		
		X.1.6	0,64	Valid		
2	IMIS	X.2.1	0,53	Valid	0,575	Reliable
		X.2.2	0,45	Valid		
		X.2.3	0,39	Valid		
		X.2.5	0,46	Valid		
		X.2.6	0,55	Valid		
		X.2.7	0,51	Valid		
		X.2.8	0,46	Valid		
		X.2.9	0,40	Valid		
		X.2.10	0,47	Valid		
		3	Performance	Y.1.3		
Y.1.4	0,33			Valid		
Y.1.5	0,57			Valid		
Y.1.6	0,30			Valid		
Y.1.7	0,51			Valid		
Y.1.8	0,39			Valid		
Y.1.9	0,36			Valid		
Y.1.11	0,57			Valid		
Y.1.12	0,48			Valid		
Y.1.13	0,46			Valid		
Y.1.15	0,34			Valid		
Y.1.16	0,35			Valid		
Y.1.17	0,33			Valid		

	Y.1.18	0,51	Valid	
	Y.1.19	0,38	Valid	

Based on the analysis of the table presented, it is evident that all the variables tested exhibit a correlation coefficient greater than 0.3 and a Cronbach's Alpha coefficient exceeding 0.266. This indicates that each instrument utilized in this study meets the necessary criteria for validity and reliability (Tavakol and Dennick 2011).

A correlation coefficient higher than 0.3 suggests a reasonably strong relationship between the variables measured. In the context of research, this means that the instruments used are capable of adequately capturing the expected relationships between these variables. For example, if Variable A and Variable B have a correlation coefficient of 0.4, this implies a sufficiently positive correlation between the two variables, thus validating the instruments used to measure them.

Furthermore, a Cronbach's Alpha coefficient above 0.266 demonstrates an adequate level of internal consistency among the items within the instruments. Cronbach's Alpha is a measure of reliability that indicates the degree to which items within a test or questionnaire are interrelated. The higher the Cronbach's Alpha value, the higher the internal consistency of the instrument. In this case, although a value above 0.266 is acceptable, a value of 0.7 or higher is generally considered ideal in many studies.

Overall, these findings suggest that the research instruments used are not only valid—in the sense that they measure what they are intended to measure—but also reliable, meaning they produce consistent results when used in repeated measurements. Therefore, these instruments are suitable for use in further research, providing a solid foundation for accurate data collection and valid analysis. Consequently, researchers can be confident that the data obtained through these instruments will effectively support the research objectives and hypotheses.

#### **Descriptive Analysis**

The descriptive analysis in this study aims to present information related to respondents' answers and responses to various statements conveyed through the research questionnaire. This method is employed to systematically depict the data, providing a clear picture of the phenomenon under investigation. In the context of this research, the descriptive analysis focuses on processing and interpreting respondents' reactions, which include mapping their opinions, perceptions, and attitudes toward a series of statements specifically designed to explore the variables being studied (Lawless et al. 2010).

Based on the research findings, the responses for each indicator of every variable can be identified as follows:

Table 2. Descriptive Analysis Results of Respondents' Responses on the Information Technology Variable (X1)

Code	Indicator	Percentage of Respondents' Responses with Answers				Average
		1	2	3	4	
<b>X1.1</b>	<b>Employee Access to the Utilization of Information Technology Facilities</b>	<b>0.00</b>	<b>7.14</b>	<b>57.14</b>	<b>35.71</b>	<b>3.29</b>
X1.1.1	Each employee has access to utilize Information Technology and its facilities, such as the internet and local networks.	0.00	0.00	62.50	37.50	3.38
X1.1.2	Employees find it very easy to access Information Technology facilities.	0.00	14.29	51.79	33.93	3.20

<b>X1.2</b>	<b>The Intensity of Information Technology Facility Utilization</b>	<b>0.00</b>	<b>4.46</b>	<b>53.57</b>	<b>41.96</b>	<b>3.38</b>
X1.2.1	Employees frequently utilize Information Technology facilities to support the completion of their tasks.	0.00	8.93	57.14	33.93	3.25
X1.2.2	Employees are highly dependent on Information Technology facilities for completing their tasks.	0.00	0.00	50.00	50.00	3.50
<b>X1.3</b>	<b>Employees' Objectives While Browsing the Internet</b>	<b>0.00</b>	<b>0.89</b>	<b>53.57</b>	<b>44.64</b>	<b>3.46</b>
X1.3.1	Employees primarily utilize the internet for browsing to assist in completing their work tasks.	0.00	1.79	60.71	37.50	3.36
X1.3.2	Employees are greatly facilitated by the availability of browsing and searching facilities.	0.00	0.00	46.43	51.79	3.55
<b>X1</b>	<b>Information Technology</b>	<b>0.00</b>	<b>4.17</b>	<b>54.76</b>	<b>40.77</b>	<b>3.37</b>

The study results indicate that the highest average score, 3.55, was observed in the statement that employees find the browsing and searching facilities highly convenient. This suggests that respondents perceive internet facilities, particularly browsing and searching features, as significantly aiding in the completion of their tasks. Respondents feel that the ability to quickly search for relevant and accurate information on the internet greatly enhances their work efficiency and effectiveness. They can easily and swiftly find data, references, and solutions to various issues encountered in their daily work.

Conversely, the lowest average score, 3.20, was noted in the statement that employees find it very easy to access Information Technology facilities. Although this score remains relatively high, it indicates that there are slightly more challenges or barriers faced by employees in accessing

Information Technology facilities compared to using the browsing and searching features. These barriers may include technical issues, such as unstable internet connections, inadequate hardware, or even internal policies that restrict access to certain technologies.

Thus, while employees generally feel supported by the availability of Information Technology facilities, particularly in terms of browsing and searching, there is an indication that improvements are needed in the overall accessibility of Information Technology facilities. Understanding this discrepancy is crucial for management to focus on enhancing the Information Technology infrastructure and ensuring that all employees have easy and swift access to the necessary tools to optimally support their performance.

Table 3. Descriptive Analysis Results of Respondents' Responses on the Integrated Management Information System Variable (X2)

Code	Indicator	Percentage of Respondents' Responses with Answers				Average
		1	2	3	4	
<b>X2.1</b>	<b>Level of Management Information System Utilization</b>	<b>0.00</b>	<b>5.36</b>	<b>52.68</b>	<b>41.96</b>	<b>3.37</b>
X2.1.1	Management Information System is utilized by all leaders and employees.	0.00	0.00	42.86	57.14	3.57
X2.1.2	The Management Information System provides easy access for stakeholders.	0.00	10.71	62.50	26.79	3.16
<b>X2.2</b>	<b>User satisfaction with Management Information System</b>	<b>0.00</b>	<b>1.79</b>	<b>64.29</b>	<b>33.93</b>	<b>3.32</b>
X2.2.1	The Management Information System device is user-friendly.	0.00	1.79	57.14	41.07	3.39
X2.2.2	The Management Information System device can generate accurate data.	0.00	1.79	71.43	26.79	3.25
<b>X2.3</b>	<b>Benefits gained from having a Management Information System</b>	<b>0.00</b>	<b>2.98</b>	<b>57.74</b>	<b>39.29</b>	<b>3.36</b>
X2.3.1	The Management Information System is capable of boosting employee morale.	0.00	1.79	57.14	41.07	3.39
X2.3.2	The Management Information System facilitates employees in their work.	0.00	1.79	57.14	41.07	3.39
X2.3.3	The Management Information System can create a comfortable working environment.	0.00	5.36	58.93	35.71	3.30
<b>X2.4</b>	<b>Facilitates goal achievement</b>	<b>0.00</b>	<b>5.36</b>	<b>70.83</b>	<b>23.81</b>	<b>3.18</b>
X2.4.1	Data from the Management Information System is used as input for decision making.	0.00	1.79	64.29	33.93	3.32
X2.4.2	Data from the Management Information System is used as input for decision making.	0.00	7.14	71.43	21.43	3.14
X2.4.3	The Management Information System can streamline workflow.	0.00	7.14	76.79	16.07	3.09
<b>X2</b>	<b>Integrated Management Information System</b>	<b>0.00</b>	<b>3.87</b>	<b>61.38</b>	<b>34.75</b>	<b>3.31</b>

Based on the assessment results, the highest average score achieved in statements regarding Management Information System (MIS) at STTN Lampung is 3.57. This indicates that both leaders and employees in the institution feel that the implemented MIS is functioning effectively. In this context, the effectiveness of MIS is measured by how well the system supports administrative performance. The aspect with the lowest rating is the ability of MIS to streamline workflow, which scored 3.09.

It is important to note that this assessment can provide a clearer picture of how well the MIS at STTN Lampung functions in supporting administrative activities. The highest scores indicate that the majority of respondents are satisfied with the performance of MIS in facilitating administrative tasks, while the lowest score indicates an area where MIS may need improvement to maximize efficiency in managing workflow.

Further analysis can reveal the factors influencing these ratings, such as the sophistication of the technology used, policies and procedures

related to MIS usage, and the level of training and understanding among MIS users at STTN Lampung. Through a deep understanding of these factors, institutions can identify appropriate improvement measures to enhance their overall MIS performance.

Thus, the evaluation of MIS assessment at STTN Lampung not only provides information about

the current state but also offers valuable insights for future development and improvement. This aligns with management principles that emphasize the importance of periodic evaluation to ensure that the system used is always at an optimal performance level, thereby contributing maximally to the institution's goals.

Table 4. Descriptive Analysis Results of Respondents' Responses on the Performance Variable (Y1)

Code	Indicator	Percentage of Respondents' Responses with Answers				Average
		1	2	3	4	
<b>Y1.1</b>	<b>Work Quality</b>	<b>0.89</b>	<b>34.82</b>	<b>59.38</b>	<b>4.91</b>	<b>2.68</b>
Y1.1.1	Employee Work Quality reflects attention to detail, accuracy, thoroughness, and precision.	0.00	26.79	60.71	12.50	2.86
Y1.1.2	Employees adhere to workplace health and safety regulations and processes.	0.00	33.93	62.50	3.57	2.70
Y1.1.3	Employees are capable of making work-related decisions, developing alternative solutions and recommendations, and choosing appropriate actions.	3.57	39.29	53.57	3.57	2.57
Y1.1.4	Employees understand the impact of decisions and actions taken.	0.00	39.29	60.71	0.00	2.61
<b>Y1.2</b>	<b>Productivity</b>	<b>0.89</b>	<b>22.32</b>	<b>59.38</b>	<b>16.52</b>	<b>2.94</b>
Y1.2.1	Employees can consistently complete assigned tasks.	1.79	23.21	32.14	39.29	3.20
Y1.2.2	Employees can determine and prioritize work effectively.	0.00	28.57	66.07	5.36	2.77
Y1.2.3	Employees can use time efficiently.	1.79	23.21	73.21	1.79	2.75
Y1.2.4	Employees can maintain a tidy workspace according to its function.	0.00	14.29	66.07	19.64	3.05
<b>Y1.3</b>	<b>Collaboration</b>	<b>0.00</b>	<b>16.07</b>	<b>66.52</b>	<b>17.41</b>	<b>3.01</b>
Y1.3.1	Employees can maintain effective working relationships.	0.00	23.21	66.07	10.71	2.88
Y1.3.2	Employees can collaborate within teams.	0.00	12.50	66.07	21.43	3.09
Y1.3.3	Employees can provide assistance and support to others.	0.00	14.29	67.86	17.86	3.04
Y1.3.4	Employees are willing to acknowledge their own mistakes and learn from them.	0.00	14.29	66.07	19.64	3.05
<b>Y1.4</b>	<b>Initiative</b>	<b>0.00</b>	<b>24.11</b>	<b>70.98</b>	<b>4.91</b>	<b>2.81</b>
Y1.4.1	Employees show initiative.	0.00	23.21	67.86	8.93	2.86
Y1.4.2	Employees are capable of generating innovative ideas, actions, and solutions.	0.00	14.29	83.93	1.79	2.88

Y1.4.3	Employees seek out new challenges, self-development, and learning opportunities.	0.00	37.50	55.36	7.14	2.70
Y1.4.4	Employees can devise alternative solutions when solving problems.	0.00	21.43	76.79	1.79	2.80
<b>Y1.5</b>	<b>Responsibility</b>	<b>0.00</b>	<b>12.95</b>	<b>72.32</b>	<b>14.73</b>	<b>3.02</b>
Y1.5.1	Employees are consistently present and punctual.	0.00	19.64	67.86	12.50	2.93
Y1.5.2	Employees are willing to follow instructions from their superiors.	0.00	10.71	76.79	12.50	3.02
Y1.5.3	Employees can work independently.	0.00	12.50	75.00	12.50	3.00
Y1.5.4	Employees can complete tasks and fulfill responsibilities within specified deadlines.	0.00	8.93	69.64	21.43	3.13
<b>Y1</b>	<b>Performance</b>	<b>0.36</b>	<b>22.05</b>	<b>65.71</b>	<b>11.70</b>	<b>2.89</b>

The average highest score obtained in the statement "Employees can consistently complete assigned tasks" is 3.20, indicating that respondents perceive the level of consistency in employee performance at STTN Lampung as excellent. Conversely, the lowest score, 2.57, was given to the statement "Employees are capable of making work-related decisions, developing alternative solutions and recommendations, and choosing appropriate actions." This suggests that there is room for improvement in employees' decision-making and problem-solving abilities at STTN Lampung.

The high average score reflects a positive assessment of employees' ability to consistently complete their assigned tasks, highlighting their reliability and dependability in executing job responsibilities. This finding underscores the importance of maintaining a consistent level of performance among employees to ensure the smooth operation of organizational activities.

On the other hand, the low score for decision-making and problem-solving skills indicates a potential area for development within the workforce. Enhancing employees' abilities to make informed decisions, think critically, and devise effective solutions is crucial for addressing complex challenges and improving overall organizational performance.

Further analysis can delve into the factors influencing these scores, such as training initiatives focused on decision-making processes, fostering a collaborative and innovative work environment, and clarifying roles and responsibilities related to decision-making. By identifying and addressing

these factors, organizations can implement targeted strategies to enhance employees' decision-making capabilities and ultimately elevate performance levels in future performance evaluations.

#### **Hypothesis Testing**

In this study, hypothesis testing is the main focus in exploring the relationship between several relevant variables. Firstly, there is a hypothesis highlighting the influence of Information Technology (IT) on employee performance. This hypothesis assumes that the higher the level of IT implementation within an organization, the higher the level of performance that can be achieved by employees. The second hypothesis concerns the impact of Integrated Management Information Systems (IMIS) implementation on employee performance (Raftery et al. 1995). This hypothesis investigates whether the effective adoption of IMIS can enhance the productivity and efficiency of employees in an organizational setting.

Furthermore, there is a third hypothesis that encompasses the combined influence of IT and IMIS on overall employee performance. This hypothesis tests whether the synergistic integration of IT and IMIS systems can produce a greater positive impact on employee performance compared to relying on either one separately.

The data collection and analysis method utilized in this research involved the use of the Social Computerized Statistics Program (SPSS). The collected data was then processed using SPSS to generate more detailed information regarding the relationships between the variables under study. The results of this analysis were then represented in the

form of a table depicting the correlations and influences among the tested variables. Below is the

table illustrating the relationships between variables as processed by the SPSS program:

Table 5. Research Variable Correlation Test

Variable	Component	IT	IMIS	Performance
IT	Pearson Correlation	1	0.609**	0.711**
	Sig. (2-tailed)		0.000	0.000
	Sum of Squares and Cross- products	8.111	3.040	3.342
	Covariance	0.147	0.055	0.061
	N	56	56	56
IMIS	Pearson Correlation	0.609**	1	0.711**
	Sig. (2-tailed)	0.000		0.000
	Sum of Squares and Cross- products	3.040	3.070	2.056
	Covariance	0.055	0.056	0.037
	N	56	56	56
Performance	Pearson Correlation	0.711**	0.711**	1
	Sig. (2-tailed)	0.000	0.000	
	Sum of Squares and Cross- products	3.342	2.056	2.722
	Covariance	0.061	0.037	0.049
	N	56	56	56

\*\* . Correlation Significant at the 0.01 Level (2-tailed)

The examination of Information Technology's impact on Employee Performance can be elucidated through Table 5, which indicates that Information Technology has a positive and highly significant influence on the Performance of STTN Lampung employees. This is demonstrated by a correlation coefficient of 0.711, signifying a positive relationship with a high level of correlation.

These test results confirm hypothesis 1 (H1), stating that there is a positive influence between Information Technology and performance at STTN Lampung. The examination regarding Integrated Management Information Systems' impact on Employee Performance shows that Integrated Management Information Systems have a positive and significant influence on the Performance of STTN Lampung employees. This is evidenced by a correlation coefficient of 0.711, indicating a positive relationship with a high level of correlation.

These test results confirm hypothesis 2 (H2), stating that there is a positive influence between the implementation of Integrated Management Information Systems and employee performance at STTN Lampung.

The examination regarding the impact of the implementation of Information Technology and Integrated Management Information Systems on overall Employee Performance indicates that the multiple regression model used to describe the relationship between the Information Technology variable and the Integrated Management Information Systems variable together has good accuracy. This is evidenced by the positive value of the Determination Index (R Square) in multiple regressions, which is 0.629. The Information Technology and Integrated Management Information Systems variables collectively influence Employee Performance significantly. The Information Technology variable has a positive influence with a coefficient of 0.256, while the Integrated Management Information Systems also have a positive influence with a coefficient of 0.416.

## CONCLUSION

Based on the discussion, this study concludes several significant findings regarding the relationship between information technology and integrated management information systems with employee performance at STTN Lampung. Firstly, the study demonstrates a positive and significant relationship between the use of information technology and employee performance. This indicates that the higher the level of utilization and effectiveness of information technology, the higher the resulting employee performance. Information technology has proven to significantly contribute to increasing employee efficiency and productivity through tools and systems that facilitate their work.

Secondly, the study also finds a positive and significant relationship between integrated management information systems and employee performance at STTN Lampung. Effectively implemented integrated management information systems help integrate various functions and processes within the organization, thereby facilitating coordination and decision-making. Increased use of these systems significantly enhances employee performance by enabling them to quickly and accurately access the information they need.

Thirdly, when information technology and integrated management information systems are used concurrently, the study reveals a positive and significant relationship with employee performance at STTN Lampung. The combination of these two systems creates a stronger synergy in improving

employee performance compared to the use of either system alone. The concurrent increase in the utilization of both systems not only enhances work efficiency but also accelerates work processes and improves the quality of work outcomes.

The implications of these findings suggest that information technology and integrated management information systems are crucial factors in efforts to enhance employee performance. High-quality information technology and its effective use contribute to improving employee work quality. Similarly, the more effectively integrated management information systems are utilized, the more they facilitate and enhance employee performance. Therefore, to support the process of performance improvement based on information technology and integrated management information systems, it is necessary to enhance human resources through training, particularly related to information technology. This training is expected to increase employees' understanding and capabilities in utilizing information technology and integrated management information systems, thereby maximizing the benefits of these systems in improving their performance.

Thus, organizations need to allocate sufficient resources for training and development in information technology and integrated management information systems. This step is crucial to ensure that all employees possess the necessary skills to optimally leverage technology, ultimately positively impacting the overall performance of the organization.

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