

# The Influence of Computerized Testing Methods in Selection Process on Employees Performance at West Sumatera Province Government

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**Abstract:** *This study aims to determine the effect of computerized testing methods use in the selecting employees process at West Sumatra Province Government. The employee selection process consists of several stages, namely: conducting job analysis, determining the number of employees to be received with the source and conducting testing to obtain qualified prospective employees. The object in this study is civil servants who are in charge of agencies within the West Sumatra provincial government. The method of data collection in this study used primary data in the form of questionnaires and quantitative approaches. The distribution of questionnaires was carried out to civil servants in charge of agencies in the West Sumatra provincial government which would then be analyzed to test the research hypothesis. The data analysis technique used in this study is SEM method with PLS software. The model used in this study emphasizes the importance of using computerized testing methods to change behavior and improve employee performance. The results showed that computerized testing had no effect on employee performance while the determinants of success in using information systems had a positive and significant effect on the employee performance in the West Sumatra provincial government. The determinants of the success using an information system that consists of relative benefits, suitability of value, convenience, experience and ability are only relative benefits that do not have a positive and significant effect on employee performance. The results of this study are expected to provide input to decision makers in the West Sumatra provincial government about the validity to use computerized testing methods in the selection process for civil servants. This is done so that the West Sumatra provincial government can improve the quality of employees and provide better services to the community.*

**Key Words:** *selection process, computerized testing, employee performance*

## 1. INTRODUCTION:

Non-profit organizations including local governments are now required to be able to create high employee performance to improve service to the community. The success of the government is influenced by several factors, one of the important factors is human resources, because human resources are the actors related to all activities ranging from planning to evaluation that are able to utilize all the resources owned by the organization. Human resources are factors that play a role in an organization or government in providing services to the public (Baedhowi, 2007).

The current world of work conditions where there is a lot of demand for work, but companies and governments often have difficulty in finding employees that fit their needs because very few have adequate qualifications. So far there have been many selections of prospective civil servants both at central and local government agencies that have been carried out in accordance with the stages in accordance with the concepts in human resources management and using advances in information technology. But the results of the selection obtained are civil servants who have been accepted and served in various agencies cannot produce the expected performance. This situation is an indicator of the ineffectiveness of the selection process of civil servants in the central and regional government, including in West Sumatra Province. Research conducted by Suthar, Chakravarthi and Pradhan (2014) shows that organizational performance and selection processes are interrelated with each other, whereas research conducted by Maltezou and Johnes (2013) in organizations that have operated globally, focusing on the selection process is often defeated with routine work demands to achieve organizational goals.

Therefore to be able to realize the high performance of civil servants and be able to carry out their functions as public servants, appropriate efforts are needed to deal with and respond to all challenges related to the government's duties in the current autonomy era. One effort to realize the professional demands of civil servants has been that in recent years the government has implemented computerized based testing methods in selecting employees. Troshani, Jerram, and Hill (2011) state that the application of computerization in the field of human resources or Human Resource Information Systems (HRIS) in the public sector depends on environmental, organizational, and technological factors.

Civil servants have a very important role because civil servants are elements of the state apparatus to carry out government and development in order to achieve state goals. The smooth implementation of government and national development is very influential from the quality of civil servants as part of the state apparatus. Research conducted by Carnicer and Sanchez (2016) shows that organizational leaders must associate the implementation of human resources management with organizational strategies to improve performance. In accordance with the law on staffing it is stated that civil servants who are capable of carrying out their duties professionally and responsibly in the completion of government and development tasks are required, and are free from Corruption, Collusion and Nepotism so that they can practice ideal governance and realization good governance. Therefore, to get civil servants who are in accordance with the demands of the law, it is necessary to conduct a fair and objective civil servant selection process.

Technology is one of the non-physical or intangible assets that must not be ignored because it is very helpful for non-profit organizations including the government to achieve its goals. At present, almost all organizational activities depend on the use of technology. Efficient and effective management of human resources is determined by the application of technology in carrying out the main functions of human resource management. Human Resources Information System (HRIS) is a concept regarding the use and development of information technology for the effective management of functions and applications of human resources management. HRIS is a systematic procedure for collecting, storing, maintaining and restoring data needed by the organization regarding human resources, personnel activities and organizational characteristics (Altarawneh & Shqairat, 2010). Troshani, Jerram, and Hill (2011) state that the use of information technology in the human resources management consists of systematic procedures and functions to obtain, store, manipulate, retrieve, analyze, and disseminate information related to organizational human resources.

The most prominent factor affecting organizational activities today is technological change. This can be seen in various fields such as the use of computers to support work. Information technology has been growing rapidly in recent years and many have led to changes. The use of information technology in organizations has the potential to change the role of organizational members. However, Gardner, Lepak, and Bartol (2003), found that almost 75% of all information technology usage programs did not achieve their goals. Meanwhile, most information technology usage programs have never reached the implementation stage. In a survey conducted by Price Waterhouse, 25 percent of senior executives responsible for implementing information technology usage programs in the financial services sector ended in failure. Thus, it is very important for the organization to continue to examine the process and not be too quickly satisfied with the use of information technology in the organization. The government, through the testing of prospective civil servants who have been computerized, issued a large amount of funds for the provision of facilities and infrastructure so that the tests could provide objective results.

The application of human resources management aims to obtain qualified employees, namely employees have competence, creativity, and ethics. The West Sumatra provincial government has implemented technology-based employee management through a selection process that has used computerized testing methods. But in reality these activities have not been able to meet the needs of high-performance and professional civil servants. This condition can be seen from the existence of culture in serving the people who have not been in accordance with the demands of the law regarding the main tasks and functions of civil servants in Indonesia. This fact was strengthened by complaints from the public related to the services provided by civil servants in the West Sumatra provincial government. The complaint is related to the discipline of employees who are rarely in the office during working hours, less friendly service, the timeliness of services that are not in accordance with standards, the existence of levies outside the provisions that apply when the community wishes to use services from the government.

The West Sumatra provincial government also seeks to improve achievements for each agency through efficient and effective budget management to improve the performance of existing civil servants. The performance of the West Sumatra provincial government can be seen in the following table.

**Table 1.1**  
**Regional Revenue Effectiveness Ratio of West Sumatra Province**

No	Year	Total (%)	Classification
1	2013	140,51	Very Effective
2	2014	102,21	Very Effective
3	2015	119,02	Very Effective
4	2016*	172,74	Very Effective
5	2017*	186,00	Very Effective
	Mean	144,09	Very Effective

Sources: Dwijayanti and Ruserlistyanti, 2018 (\* = prediction)

Based on table 1.1 above, it can be seen the results of the calculation of the effectiveness ratio, to determine the ability of regional governments to realize regional original income compared to the target set based on the real potential of the region. Effectiveness ratio analysis is categorized as effective if the ratio achieved is at least 1 or 100 percent. The higher of the effectiveness ratio, the better ability of the area. Based on the table above, West Sumatra Province is classified as very effective even though its effectiveness ratio values fluctuate during the five years of observation.

**Table 1.2**  
**Efficiency Ratio of West Sumatra Province**

No	Year	Total (%)	Classification
1	2013	95,01	Less Efficient
2	2014	81,80	Less Efficient
3	2015	116,59	Not Efficient
4	2016*	146,59	Not Efficient
5	2017*	176,00	Not Efficient
	Mean	123	Not Efficient

Source: Dwijayanti and Rusherlistyanti, 2018 (\* = prediction)

Based on table 1.2 it is known that the financial efficiency ratio of the provincial government of West Sumatra in 2013-2017 fluctuated and obtained an inefficient classification. The performance of local governments is said to be efficient if the ratio achieved is less than 1 or below 100 percent. The smaller the efficiency ratio describes the better regional capabilities.

The data above shows that even though the effectiveness ratio of regional original income in West Sumatra Province is, on average, very effective, the efficiency ratio value is categorized as inefficient. This shows that the West Sumatra provincial government has been able to realize regional original income compared to the targets set based on the real potential of the region but still not efficient in managing the finances of the local government. This condition is related to the competency and professionalism of civil servants who are in charge of agencies in the provincial government of West Sumatra. To be able to obtain employees in accordance with the needs and demands of the basic tasks and functions of the government, the provincial government of West Sumatra must carry out a selection process including testing of prospective and objective civil servants.

The purpose of this research will be:

1. To test the effect of using computerized employee testing methods on the performance of civil servants in the West Sumatra provincial government.
2. To examine the influence of the determinants of the success of the implementation of information systems on the civil servants performance in the West Sumatra province government.

The focus in this study is different from previous studies, because this research wants to analyze the importance role from information technology in the form of computerized prospective employee testing methods in the organizational resources management, especially the selection process. This study seeks to fill the gap of research related to the application of information technology in the process of employee recruitment. There are not many studies that have been done before discuss the effect of using a computerized testing method that will ultimately determine the acquisition of qualified employees.

## 2. LITERATURE REVIEW:

### Performance Assessment

Performance appraisal is also known as: personal assessment, employee evaluation, work performance assessment, and efficiency assessment. Performance appraisal is a process used to determine whether a person does his work in accordance with established standards. Performance assessment is a process of measuring one's performance, while other experts argue that performance appraisal is a process that consists of the following steps (Robbins and Judge, 2013):

- 1) Comparing standard (actual) achievements.
- 2) Determine existing weaknesses (if any).
- 3) Develop and know how to correct known deficiencies.

Initial assessment is a process of assessing performance carried out by the organization systematically based on the work assigned to someone. Another opinion states that valuation is a systematic process to assess employee behavior in specific work that will be the basis of policy setting and development (Wungu and Brotoharsojo, 2003). Effective

performance assessment not only evaluates a person's ability, but also evaluates the opportunities he has. To measure the performance achieved during the specified period, the factors that form the basis of the assessment and approaches and methods are used as a tool to measure performance.

In performance appraisal there are several types of criteria that can be assessed. Noe, Hollenbeck, Gerhart, and Wright (2010) reveal six main performance criteria that can be assessed, namely: quality, quantity, timeliness, cost effectiveness, supervision and interpersonal influence. From the six criteria above there are three important criteria, namely, quality, effectiveness, and timeliness and the most important factors are quality factors, which can be competitive alternatives in the era globalization (Noe et al., 2010). Performance assessment is carried out to achieve a goal (Wungu and Brotoharsojo, 2003). According to experts, the performance appraisal purpose is to provide performance information that can be used to reward, human resources development and planning. Performance assessment has two main objectives that can be seen from the interests of the organization and employees.

### **Employee Testing**

Tests are procedures carried out to determine the competence and quality of job applicants in a particular field both in terms of skills and soft skills. The testing method used also varies depending on the desired competency of the candidate or prospective employee. Some testing methods that can be used in knowing the competence of candidates or prospective employees are: psychological test, physical test, honesty test, basic competency test, academic potential test. Besides that there are also testing methods that utilize technological advances, namely computerized testing methods, namely the use of computers as a means to assess the competency of candidates or prospective employees (Robbins and Judge, 2013). Computerized Assisted Test (CAT) method can be tested using a computerized method. Computer Assisted Test (CAT) is a testing method as part of the selection function by using computer aids used to test employees. The application of the testing method for the new candidate or prospective employee is expected to be able to carry out transparent, accountability, objective, non-discriminatory testing and free from corruption, nepotism, to obtain employees who are professional, honest and responsible.

### **Determinants for Success from Information Systems Application**

Adoption and diffusion of information technology is a subject that has been widely studied in various disciplines such as: social science, marketing, engineering and management in general. This is done to explain the information flow, ideas, practices, products, and services across cultures and sub-cultures or market segments. For example, Rogers (2003) in his book explains the diffusion of technology that can identify relative advantages, conformity with values, convenience, experience and the ability to use information technology that influence adoption activities. Subsequent research provides empirical support for suitability, relative benefits and convenience in the use of information technology (Tornatzky and Klein, 1982). On the other hand, in the information technology literature, one of the most prominent frameworks of the impact of information technology includes three stages of use namely: automation, information, and transformation (Remenyi, Money &Twite, 1991; Zuboff, 1988).

### **Relative Benefits**

Rogers (2003) defines relative profits as the extent to which information technology feels better than the activities carried out previously. This can also be seen as the level at which information technology is felt to bring additional benefits to users. Therefore, this relative advantage is often measured in terms of economic profitability, increased productivity and other benefits. The nature of information technology determines the type of relative specific benefits it gives to end users. The application of information technology depends on the expected benefits of its use in accordance with potential demand. In the Technology Acceptance Model (TAM) by Davis (1989), this particular attribute is referred to as the desire to use it. In general, the relative benefits of using information technology felt by members of the organization are positive.

### **Conformity**

Rogers (2003) states that suitability is the extent to which the use of information technology is considered consistent with existing values, past experience, and the needs of potential adopters. This also relates to conformity with the values and norms adopted by adopters and therefore more in line with information technology that can be easily accepted. The use of information technology can be appropriate or not in accordance with:

- (1) Socio-cultural values and beliefs,
- (2) The ideas introduced earlier, or
- (3) The needs of information technology users

### **Ease**

Rogers (2003) defines ease as the level at which the use of information technology is considered relatively difficult to understand and use. Every new idea can be classified at its convenience. Some uses of information technology

clearly mean for potential adopters while others do not. In the model of Technology Acceptance Model (TAM) by Davis (1989), this attribute is referred to as convenience perceived by users from the application of information technology.

### Experience

According to Rogers (2003), experience is the extent to which an application of information technology is tried to do so in a limited manner. Some uses of information technology are more difficult to do than others. The attempt to try the use of information technology is in order to find out how it works based on one's interpretation. Experience in using information technology is a means to eliminate uncertainty about the adoption of information technology.

### Ability

Ability is defined by Rogers (2003) as to what extent the results of an application of information technology are seen by others. The results of some ideas are easily observed and communicated to others, while some others are difficult to observe or describe. Rogers (2003) argues that the more visible the use of information technology (and its benefits), the greater the likelihood of its application.

### Theoretical Models and Research Roadmaps

The model described below is a theoretical model and the research road map will be carried out based on relationships between variables as discussed in the previous section.

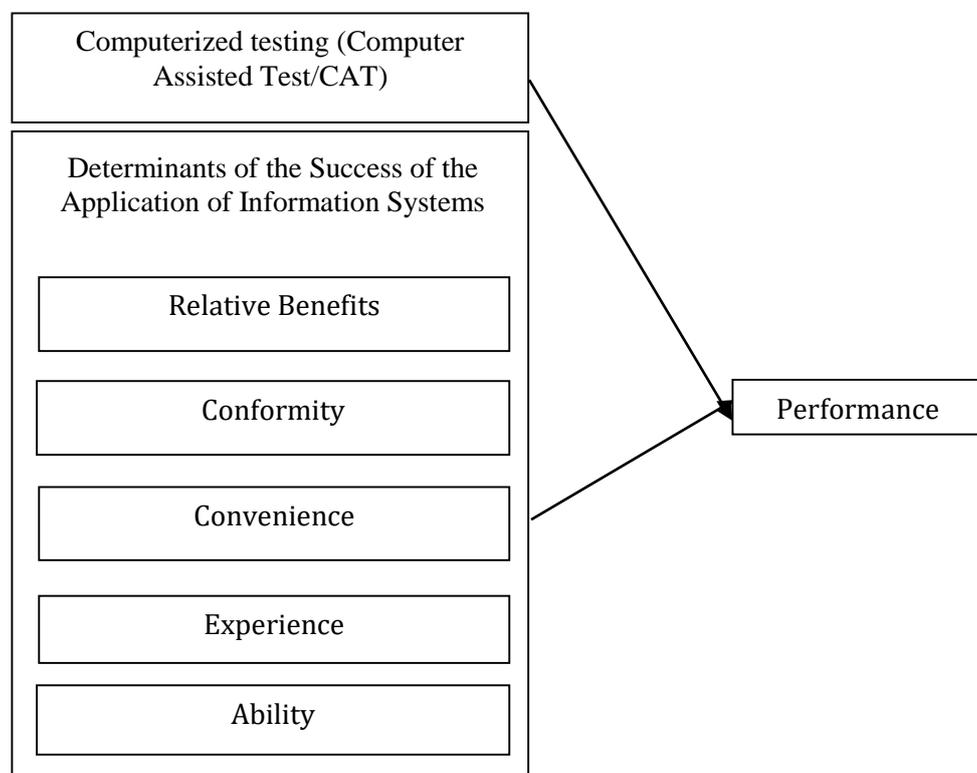


Figure 2.1 Theoretical Model and Research Roadmap

### Hypothesis

Based on the literature review and previous research about variables above, the development of hypotheses in this study can be formulated:

- H1: Use of a computerized employee testing method (CAT) has a positive and significant effect on employee performance.
- H2: Determinants for success from information systems application have a positive and significant effect on employee performance.

### 3. METHOD:

#### Research Design

This research included survey research using a questionnaire as a primary data collection tool and using a quantitative approach. The research method used is causal research. The main purpose of causal research is to obtain evidence or test hypotheses regarding causal relationships, and make conclusions about causal relationships between

variables (Kumar, Talib and Ramayah, 2013). Causal research is a research approach in which researchers investigate the cause and effect relationship between variables in a study in which one variable is believed to affect the other.

**Population and Samples**

The population in this study was all civil servants who served in the agency of the West Sumatra provincial government. The latest data obtained about the number of civil servants serving in the agency in the West Sumatra government environment are 21,000 people. To get data, researchers took samples from the population using a sampling method, namely: purposive sampling, namely sampling from the population based on specific criteria or characteristics. The criteria used as the basis for the selection in this study are civil servants who go through the selection process to become candidates for civil servants through testing with a computerized method or CAT. Testing with this method has been carried out for the civil servants candidates for selection process since 2013. After classifying the population in this study using these criteria, the number of samples used in this study is 270 employees with a sample of 10% based on Issac and Michael's table (2013).

**Research Variables and Variable Measurements**

To determine the data that supports this research activity, it is important to explain about the operationalization of the variables used. The purpose of this study was to determine the influence of the computerized method test and determinants for success from information system on civil servants performance in the West Sumatra provincial government.

**Table 3.1  
 Variable Operationalization**

No.	Variable	Sub-variable	Scale
1.	The testing method that utilizes technological advances namely computerized testing methods is the use of computers as a means to assess the competency of candidates or prospective employees (Robbins and Judge, 2013).	Validity Reliability	Interval
2.	Determinants fro Success from Information Systems Application is the extent to which information technology is perceived to be better than the activities carried out previously (Rogers, 2003)	Relative advantage, suitability, ease, experience, ability	Interval

**Data Analysis**

The structured questionnaire was used in this study to collect data from selected civil servants as samples who were assigned to all agencies within the West Sumatra provincial government. The questionnaire is divided into several parts, namely: testing with a computerized method, determinants for success of using the information system and suggestions.

Data processing is done using the latest SPSS to find out the relationship between variables in this study. Before testing the hypothesis, the research instrument was tested, namely the validity and reliability test to find out whether the questions in the questionnaire were valid and reliable. Furthermore, classical assumptions are tested to ensure that the research data is normally distributed because multiple linear regression analysis requires that data that can be processed is normally distributed data.

**4. DISCUSSION:**

To find out the form of the relationship between the independent and dependent variables in this study, multiple linear regression analysis was carried out as described in the table below.

**Table 4.1  
 Multiple Linear Regression Analysis 1**

Model		Unstandardized Coefficients		Standardized Coefficients
		B	Std. Error	Beta
1	(Constant)	.388	.192	
	X1	.005	.060	.005
	X2	.911	.074	.834

Source: Data Processing Results, 2018

The table above shows that the coefficients of B1 and B2 are positive, which means that there is a direct or positive relationship between the independent variable and the dependent variable. This means that if there is an increase in testing and the determinants for success in information systems implementation will improve employee performance and vice versa.

**Table 4.2**  
**Multiple Linear Regression Analysis 2**

Model		Unstandardized Coefficients		Standardized Coefficients
		B	Std. Error	Beta
1	(Constant)	.320	.179	
	Relative Benefits	.003	.045	.003
	Conformity	.218	.057	.248
	Convenience	.265	.043	.327
	Experience	.144	.048	.168
	Ability	.296	.051	.329

Source: Data Processing Results, 2018

Data processing in the table above shows that the coefficient B of the five independent variables used is positive, which means that there is a direct or positive relationship between the independent variable and the dependent variable. This means that if there is an increase in testing and determinants for success from information systems application such as: relative benefits, conformity, convenience, experience and ability will improve employee performance and vice versa.

The coefficient of determination is used to determine the contribution of independent variables to the existence of the dependent variable.

**Table 4.3**  
**Coefficient of Determination (R<sup>2</sup>)**

Model	R	R Square	Adjusted R Square
1	.838 <sup>a</sup>	.702	.698

Source: Data Processing Results, 2018

Based on table 4.3 above obtained the coefficient of determination or adjusted R<sup>2</sup> is 0.698 or 69.8%, meaning that the independent variable in this study consisting of testing and the determinants for success from information systems application is able to explain the performance variable of 69.8%, while the remaining 30,2% is explained by other variables not used in this study.

This test is conducted to determine the effect of the independent variables on the dependent variable described in the research hypothesis.

**Table 4.4**  
**Hypothesis Testing 1**

Model		t	Sig.
1	(Constant)	2.028	.044
	X1	.081	.936
	X2	12.324	.000

Source: Data Processing Results, 2018

The table above shows that the significance values for computerized testing variables are greater than alpha (0.936>0.05), then Ho is accepted and Ha is rejected. This means that there is no positive and significant influence between computerized testing (X1) on employee performance (Y). Therefore the first hypothesis which states that computerized testing has a positive and significant effect on employee performance is rejected. While the significance value for the variables that determine the success for information system application is smaller than alpha (0,000<0,05),

then Ho is rejected and Ha is accepted. This means that there is a positive and significant influence between determinants for success from information systems application with employee performance.

**Table 4.5**  
**Hypothesis Testing 2**

Model		t	Sig.
1	(Constant)	1.786	.076
	Relative Benefits	.056	.956
	Conformity	3.838	.000
	Convenience	6.144	.000
	Experience	3.017	.003
	Ability	5.847	.000

Source: Data Processing Results, 2018

From the results of the t test in table 4.5, it can be seen that the determinants for success from information system consisting of conformity, convenience, experience and ability have a significance value of 0.000-0.003, far below the tolerance level used which is 5% (alpha = 5% ) or with a significance value of 0,000-0,003 smaller than 0.05. This means that Ho is rejected and Ha is accepted, which means there is a positive and significant influence from each of these factors on employee performance in civil servants at government of West Sumatra province.

As for the relative benefits, the significance value is far above 0.05 (0.956>0.05), so Ho is accepted and Ha is rejected, which means that the relative benefits of using information systems do not have a positive and significant effect on the employees performance in civil servants at West Sumatra provincial government. Testing the hypothesis that has been done can be concluded in the following table.

**Table 4.6**  
**Conclusion of Hypothesis Testing**

Hypothesis	Statement of Hypothesis	Result
H1	The use of computerized employee testing methods (CAT) has a positive and significant effect on employee performance.	Not Supported
H2	The determinants of the success of the application of information systems have a positive and significant effect on employee performance.	Supported

The two hypotheses proposed in this study are only one which is supported by empirical evidence through hypothesis testing that has been done. The first hypothesis states that the use of computerized employee testing methods has a positive and significant effect on employee performance is not supported because the significance value obtained is greater than alpha after data processing is done. The second hypothesis which states that determinants for success from information systems application have a positive and significant effect on employee performance is supported where after being tested empirically proven. For the determinants of the success from information systems application, only one does not have a positive and significant effect, namely the relative benefits, while other factors positively and significantly determine the success from information systems application in the selection process in the West Sumatra provincial government.

## 5. CONCLUSIONS:

The conclusions from the research that has been done based on the analysis and discussion in the previous section are:

- The use of computerized employee testing methods does not have a positive and significant effect on employee performance. This means that the employees performance in West Sumatra province government is not influenced by a computerized selection system.
- Determinants for success from information systems application have a positive and significant effect on employee performance. This means that in the selection process conducted by a computerized system, employees feel that many factors contribute to their success in undergoing the selection process by utilizing information technology.

- Relative benefits do not have a positive and significant effect on the use of computerized employee testing methods in the West Sumatra provincial government. Employees who have used information systems in testing employees do not feel any benefits and benefits to their work compared to the previous testing method.
- Suitability of values has a positive and significant effect on the use of computerized employee testing methods in the West Sumatra provincial government. The value adopted by employees in West Sumatra province is in accordance with the information system that has been implemented in order to improve the efficiency and effectiveness of the selection activities.
- Ease has a positive and significant effect on the use of computerized employee testing methods in the West Sumatra provincial government. The understanding and use of information systems for employees in the West Sumatra provincial government is not too difficult in practice.
- Experience has a positive and significant effect on the use of computerized employee testing methods in the West Sumatra provincial government. Experience in carrying out work and using information systems for employees has a positive impact on employees because it makes it easier to implement information systems.
- Capability has a positive and significant effect on the use of computerized employee testing methods in the West Sumatra provincial government. Employees are not affected by the success or ability of others in using information systems.

## 6. SUGGESTION:

Based on the data analysis and discussion presented earlier, the suggestions submitted are:

- The West Sumatra provincial government must evaluate the use of computerized testing methods that have been implemented because it does not affect employee performance.
- Computerized testing carried out can still be carried out by adjusting it to the needs or characteristics of the work that will be occupied by the employee.
- Using different samples from other companies or non-profit organizations.
- Using different statistical analysis.
- Use mediation or moderation variables.
- Using a qualitative approach.
- Build models for other sectors.

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