Information Technology and Organizational Climate in Higher Education

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ABSTRACT
Information technology is a component that can accelerate business processes in every organization if it is managed properly, including in universities. Information technology is a business strategy for some Indonesian universities. However, some universities cannot maximize their performance properly. This research aims to determine the extent of the influence of information technology on organizational climate in tertiary institutions in Garut Regency. This study involved 77 respondents consisting of university leaders, heads of departments/units, and educational staff and lecturers from 5 universities in Garut Regency. The method used in this research was descriptive research and verification research, and the data collected was processed using SMARTPLS. From the analysis results, it was found that information technology had a very significant influence on the responsibilities of the academic community which is part of the existing organizational climate. This explains that the organizational climate can be flexible depends on universities' support of information technology.

Keywords: *information technology, organizational climate.*

1. INTRODUCTION

Because of the human needs in the era of the industrial revolution 4.0 and the conditions of society in the era of society 5.0 that is looking for convenience, speed in business processes in all organizations are separate demands that must be met [1]. This indicates that information technology has become a strategic part of all forms of organization [2-4]. Information technology plays an important role in improving organizational performance in supporting speed and ease of access to information and expediting business processes, including private universities in Indonesia. [5, 6].

Private universities are one of the business entities that need innovation in providing services to their stakeholders, including information technology-based services [7]. Indonesia is currently one of the countries that have private universities in Southeast Asia. This is reinforced by statistical data shown in Table 1 regarding the number of private universities in Indonesia, which has increased every year.

Based on Table 1 in the last 3 years, Indonesia is the country in Southeast Asia with the most tertiary institutions. Currently, in 2018 there were 3,171 private universities. [8]. Whereas in 2017, there were 3154 private universities, and in 2016 there were 3124 [9, 10]. In the last 3 years, in terms of quantity, the number of private universities in Indonesia has increased, so it can be said that private universities in Indonesia are getting more intense in competition with one another.

Table 1. Number of Private Universities In The Last 3 Years In Indonesia [8]

Year	*2016*	*2017*	*2018*
Number of Private Universities	3124	3154	3171

However, behind the data, some facts show that most universities have not maximally used integrated information technology in every business process. In fact, the organizational climate has a vital role in creating an organizational commitment to achieving the organization's goals. [11]. In its development, an organizational climate formed from good resources at private universities can increase the potential for organizational commitment [12].

Basically, this research has an urgency to find out how great the role of information technology in the midst of an organization that has not been optimally implemented as a supporting tool in business processes in private universities. It is expected the management or university leaders can make policies that are relevant, effective, and efficient.

1.1. Information Technology Concept

Previous research revealed that information technology is a business strategy that had an influence on organizational competitiveness [13]. In addition, information technology had a tremendous impact on the competitiveness of companies [14]. Information technology could also affect an organizational climate which had an impact on competitiveness [15]. Some of the research results indicated that information technology was relevant for improving its innovation performance in creating competitiveness. [16]. Many previous studies that have been conducted reported the same findings. Other studies have found that an interaction between information technology capabilities and human resources could affect the ability of information technology to effectively increase the competitiveness of an organization [15, 17]. Information technology can be categorized into three indicators, among others: Information Technology as a competitive advantage, strong belief in advanced Information Technology, and Information Technology to accommodate customer needs. In addition, there is also a definition of Information Technology capabilities that are built on four resources: IT infrastructure, IT business experience, IT relations resources, and IT human resources. [17].

Information technology is one of the important tools in the service activities of a business organization in a company. [18]. In addition, information technology is an important strategic resource for organizations, including universities. This provides a very positive contribution to information that had an impact on decision making. [19]. In measuring and analyzing Information Technology, several indicators may be used, including information quality, system quality and service quality [20].

1.2. The Concept of Organizational Climate

Organizational climate is actually a set of characteristics that describe an organization. It differs the organization from other organizations and remains for a certain period of time. It also affects the work behavior of employees in certain organizations. Organizational climate is a phenomenon experienced by researchers in field practice that arises from different organizational conditions. [21]. Organizational climate had a positive influence on the sustainability of an organization's competitiveness [22], which is also supported by other research [11], [23]. There are several dimensions of organizational climate, among others: clarity, standards, responsibility, flexibility, rewards, and team commitment [24, 25]. A healthy organizational climate is a long-term proposition. Every manager needs to take an asset climate approach, which means that they take a long-term view of climate as an organizational asset [26].

The dimensions of organizational climate in a measurement model is called the Litwin & Stringer 'Organizational Climate (LSOC) [25]. The following are the 6 (six) dimensions of organizational climate as follows [24, 25]:

1) Flexibility conformity. This is an organizational condition to provide freedom of action for employees and make adjustments to the assigned tasks.

2) Responsibility. This relates to the feelings of employees carrying out organizational tasks because they are involved in the ongoing process.

3) Standards. Feelings of employees about the condition of the organization where management pays attention to the implementation of tasks well, in which the goals have been determined.

4) Reward. This is related to employees' feelings about appreciation and recognition for good work.

5) Clarity. This is associated with employees' feelings that they know what is expected of them with their job, role and organizational goals.

6) Team Commitment. This relates to employees' feelings about their sense of pride in having the organization and willingness to put in more effort when needed.

2. METHODS

The research method used was a descriptive survey and explanatory survey methods with organizational analysis units, namely private universities in West Java, especially in Garut Regency. The observation unit was the manager of private universities consisting of Higher Education Leaders, Education Staff and Educators involving 77 respondents.

Data were collected in a time span of "one shoot" - cross sectional, that is, data was collected only once in order to answer research questions. In this study, the data processing used SEM-PLS software.

The operational description of the variables studied can be seen in Table 2.

Table 2. Research Variable

Variabels	Indicators
Information Technology	Quality of Information
	Quality System
	Quality of Service
Organizational Climate	*Flexibility conformity*
	Standards
	Responsibility
	Reward
	Clarity
	Team Commitment

3. RESULTS AND DISCUSSION

In conducting the analysis process regarding testing the influence of information technology on the organizational climate of private universities in Garut district, the data was processed using SmartPLS software. In this PLS, there is a random bootstrapping method that is carried out by the software, so that the assumption of normality is no longer a problem. Based on data and analysis results by SmartPLS, the the modeling results can be seen in Figure 1.

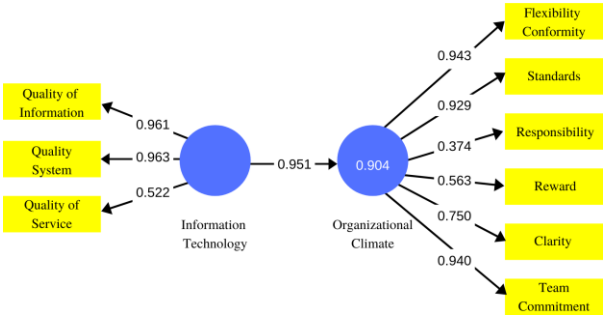

Figure 1. PLS modelling

Based on the results of the calculation analysis on the PLS Algorithm above, there are several values that can be interpreted. The path coefficient from Information Technology to Organizational Climate latent variable is 0.951. This means that the effect of the latent variable Information Technology on Organizational Climate is 0.951. In addition, for each indicator on the Information Technology variable, there is a factor loading value, including: Information Quality of 0.961; System Quality of 0.963; Service Quality of 0.522.

Meanwhile, there is a factor loading value for each indicator which is connected to the Organizational Climate variables. These values include: Flexibility Conformity of 0.943; Standards of 0.929; Responsibility of 0.374; Reward of 0.563; Clarity of 0.750; and Team Commitment of 0.940.

To determine the reliability of an indicator against its variables, SmartPLS determines that if there is an indicator that has a loading factor value below 0.5. then these indicators should be removed from the model. Referring to the calculation results, there is one indicator that has a factor value below 0.5. This indicator is Responsibility. Thus, it can be concluded that responsibility concerning the application of Information Technology in private universities is not reliable. The indicator will then be removed from the PLS model, so that the model will test convergent validity since all factor loadings are above 0.5.

Besides, there is a Discriminant validity value for the indicator, which can be seen from the cross-loading value between the indicator and its construct. There are several other results displayed on SmartPLS. These results include the Construct Reliability and Validity matrix as shown in Table 3.

Table 3. Construct Reliability and Validity

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
IT	0.777	0.920	0.872	0.708
OC	0.856	0.947	0.896	0.609

To see discriminant validity in this study, it can be determined by the square root of the average variance extracted (AVE) value. The recommended value is above 0.5. Based on Figure 1, all variables consisting of Information Technology and Organizational Climate have a value of> 0.5. It can be concluded that Information Technology and Organizational Climate are valid and meet the requirements.

After that, the variable reliability testing was carried out, measured through the composite reliability value and Cronbach alpha. The variable size determination can be said to be reliable when the composite liability and Cronbach alpha values are above 0.70. Based on the matrix results, the value of each variable shows that information technology and Organizational Climate have good reliability because the value is more than 0.70.

Furthermore, there is the Goodness-fit model test which is the inner model test stage on the PLS. The test was done by looking at the R-Square value. Table 4 shows the result of the R-Square value.

Table 4. R SQUARE

	R Square	R Square Adjusted
Organizational Climate	0.904	0.901

Based on table 3, the results show that the Organizational Climate has an R-square value of 0.904. Thus, it can be concluded that Information Technology

is able to explain the variance of the Organizational Climate in Private Universities in Garut Regency by 90.4%. This shows that the use of these variables in this study has very good representation.

The hypothesis in SEM PLS can be examined by testing the outer model with the bootstrapping method. Table 5 shows the results.

Table 5. Path Coefficient

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
IT → OC	0.955	0.961	0.009	110.005	0.000

Based on Table 5, it shows that the relationship between In-formation Technology and Organizational Climate is significant because the T-statistic value is 110 (> 1.66). In addition, the value on the original sample estimate shows a positive value, namely 0.955, which illustrates that the direction of the relationship between Information Technology and Organizational Climate is positive. Thus, it can be concluded that there is an influence of Information Technology on the climate of private higher education organizations in Garut Regency. This is in line with several previous studies which stated that information technology had a significant relationship to organizational climate change [1, 21, 27, 28].

4. CONCLUSION

Information technology has a very significant influence on the responsibilities of the academic community, which is part of the existing organizational climate. This explains that the organizational climate can be flexible depends on the support of information technology used by universities. Information technology can stimulate changes in the academic atmosphere and organizational climate at private universities in Garut. With the influence of information technology on private universities, it gives employees a comfortable and good feeling in carrying out the tasks and organizational goals that have been determined. In addition, the presence of good quality information makes employees feel proud and loyal to the organization.

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